PAINT and VARNISH Products

THE TECHNICAL MAGAZINE FOR MANUFACTURERS OF PAINT, VARNISH, LACQUER AND OTHER SYNTHETIC FINISHES

Over 30,200,000 People
WILL SEE THIS AD!

NEW! **WALLKYD**

Chemistry's Wonder Alkyd for Wall Enamels

A REVOLUTIONARY DEVELOPMENT IN WALL ENAMEL FORMULATION!

NEW ALKYD-BASE WALL ENAMELS ARE A CINCH TO APPLY... ROLL READILY... BRUSH FREELY... DRY RAPIDLY... WASH EASILY... KEEP THEIR VELVETY BEAUTY FOR YEARS

Imagine a new base for wall enamels that is head and shoulders above any other type. Such a miracle ingredient is WALLKYD, which brings to the home, for the first time, the unique wear-and-water resisting qualities featured in the sprayed-on, baked enamels used to finish today's automobiles, refrigerators, stoves and washing machines. WALLKYD is also an alkyd resin, now available in easily-applied, air-drying form.

Only WALLKYD-base wall enamels offer you *all* these advantages:

They go on easily. Anyone can paint like a "pro" and turn out a job that's smoother, freer from brush and roller marks, laps, runs, sags.

They dry in a jiffy. You can put furniture and drapes back in the evening when you paint in the morning. And even if you soil the surface the next day, you'll find it hard enough to wash without marring. There's no lengthy "tender" period.

They come clean quickly. Soap and water easily remove finger-prints, chalk, pencil and crayon marks, dirt smudges, dust accumulations. Even repeated washing won't wear away the finish.

They work on any surface...walls, ceilings, trim...plaster, wallboard, metal, wood.

They "cover" better. Solvent-thinned WALLKYD-base wall enamels actually contain more pigment and color (more paint) per gallon, which accounts for their greater hiding power per coat.

They're tops in beauty. You can't beat the delicate pastels, vibrant deep tones, longer life, greater resistance to scratching, marring and chipping characteristic of these finishes.

They're free from pungent "wet paint" fumes that smell bad, burn the eyes and sting the nose and throat.

Whether you employ a painter or "do it yourself", you'll want to get the unusual combination of features available only in a WALLKYD-base wall enamel. Write us for a list of the paint manufacturers now formulating with WALLKYD.

Demand a Brand made with WALLKYD

To get full advantage of the many improved properties imported by WALLKYD, today's finest alkyd for flat wall enamels, make sure the manufacturer guarantees a minimum of 85% WALLKYD in his "vehicle solids".

WALLKYD

IT'S WALLKYD FOR HANDSOMER, MORE ENDURING OUTDOOR PAINT JOBS, TOO!

Home owners want outside paints to last as long as possible so that their biggest investment in painting ... a painter's labor or their own time ... goes much further. That's why more and more manufacturers of exterior paints are adding WALLKYD to their formulations.

Creative Chemistry . . . Your Partner in Progress

REICHHOLD CHEMICALS, INC.

630 Fifth Avenue, New York 20, N. Y.

Producer of WALLKYD — *and other synthetic resins for the paint, printing ink, paper, plywood, textile and foundry industries.*

Just the beginning... of a *Giant* campaign

...full pages this Fall in these leading national magazines...

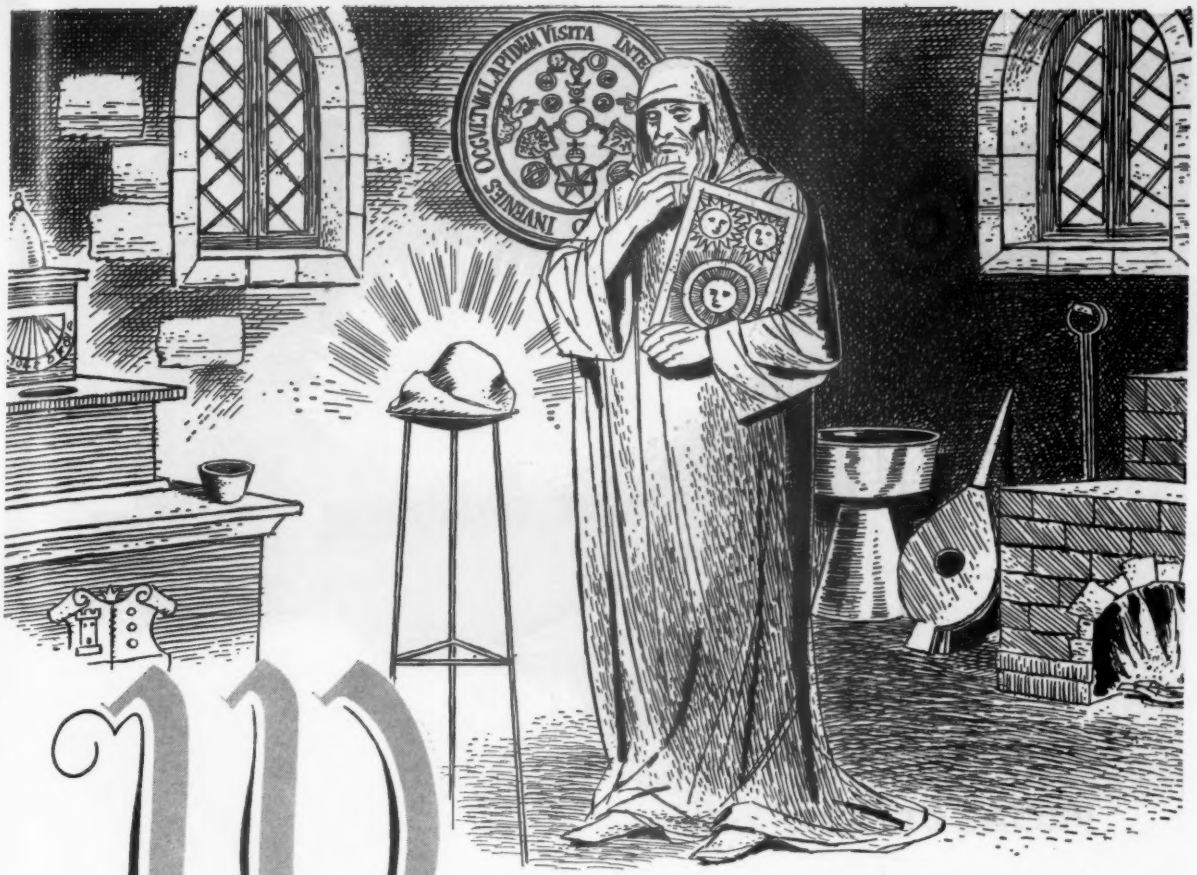
THE SATURDAY EVENING POST	Sept. 12th... Oct. 3rd
BETTER HOMES AND GARDENS	Sept.... Oct.
U. S. NEWS & WORLD REPORT	Sept. 18th... Oct. 9th
FORTUNE	Sept.... Oct.
BUSINESS WEEK	Sept. 5th... Sept. 26th

BE READY TO MEET THE DEMAND!
FORMULATE WITH WALLKYD NOW!

Tie in your own wall enamel promotion with this hard-hitting campaign!

For full information on WALLKYD and the WALLKYD advertising program, write...

REICHHOLD CHEMICALS, INC.
630 Fifth Avenue, New York 20, N. Y.



Wonder worker

WHAT IS A "WONDER WORKER"? The alchemists *sought* one in the Philosopher's Stone, a substance that would turn base metals into gold. Modern paint and enamel formulators *have found* one in Epon resins.

For example, Epon resins have made possible an *entirely new* type of surface coating, combining the chemical resistance of baked films with the convenience of air-dried finishes. From floor varnishes and trim paints to baked container linings that resist chemical attack, Epon resins have created important improvements in surface coatings.

Epon resins provide excellent adhesion, especially to metals —high chemical resistance—outstanding flexibility and impact resistance. These characteristics point the way to a new era of surface coating formulation!

Epon® Resin

Although the demand for Epon resins currently exceeds the supply, increased production is on the way. Discover for yourself their advantages, and you will agree that Epon resins are worth waiting for . . . and planning for . . . *now*. You are invited to write for complete technical information.

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CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE

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PAINT and VARNISH Production

(REG. U.S. PATENT OFFICE)

Formerly PAINT and VARNISH PRODUCTION MANAGER
(Established in 1910 as The Paint and Varnish Record)

VOL. 43 SEPTEMBER, 1953 NO. 9

NEXT ISSUE

In connection with the Annual Paint Conventions to be held during the week of October 26th in Atlantic City, we are pleased to announce that our October issue will be an all convention number. Programs of the National Association and the Federation together with a listing of all exhibitors at the Paint Industries' Show will be included in this special issue. As a special feature we will present exclusive articles on recent trends and developments in pigment technology for the paint industry.

★ FEATURES

★ DEPARTMENTS

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Editorial Comment

Advice for the Novice

SPEAKING at the First North American Conference on Apprenticeship, Harold C. McClellan, president of Old Colony Paint and Chemical Co., presented some worthwhile advise on Apprenticeship Training which we are pleased to present for your benefit. We quote—

"It seems to me that if we are to make the most of our opportunities in Apprenticeship Training, new emphasis should be placed upon the importance of maintaining good relations with others in the work force. To the ambitious young man beginning his course of Apprenticeship Training who want to make the most of his opportunities, I would emphasize what I consider to be five essential requirements.

"The first is to learn to get along with people. This step is important and cannot be postponed.

"Second, I would emphasize the need for accepting the responsibility of the task—if he is willing to undertake it—whether large or small, and then to the best of his ability fulfilling that responsibility.

"Third, I would emphasize the importance of character, personal integrity and attitude of willingness to learn to be helpful, to contribute to the efforts of the whole team.

"Fourth, I believe it is essential that there be a measure of self discipline, a clear recognition of what is right and what is wrong, acceptance of instructions in the spirit in which they are given; such an attitude demonstrates the man-in-the-making and foreshadows the man-to-come.

"Finally, and perhaps most important of all, I would encourage loyalty—forthrightness—fairness—objectivity—and tolerance for the other fellow's point of view."

Radioisotopes Aiding Process Control

ONE of the developments which caught our attention at the First Exposition of Basic Materials and Basic Materials Conference was the increasing use of radioisotopes in industrial research and process control.

Of particular interest to the paint field was the application of radioisotopes for measuring the uniformity of mixing.

In the case of mixing paint, it has been suggested that a short-lived radioisotope be added either to the pigment or the vehicle, preferably the former. The paint is mixed in special equipment which has a series of counters attached to the stirring paddles or other mixing device.

Each of these counters is connected to a cable which leads to a multi-point recorder. An instantaneous measurement is possible of the distribution of the radioisotopes throughout the volume of the mixing apparatus. When the output from each of these counters is the same, or within limits regarded as equal, homogenity of the batch is indicated and the mixing process can be stopped.

The expected advantages claimed in using such a method would be primarily economic in requiring less manpower and in the eliminating of unnecessary mixing time.

To many radioisotopes are considered useful only in basic research laboratories, but with each passing day, radioisotopes are finding practical usé in many of our industrial processes.

Our Special October Issue

AT the end of next month, the National Paint, Varnish and Lacquer Association and the Federation of Paint and Varnish Production Clubs will hold their respective conventions in Atlantic City. In connection with these forthcoming meetings, the Annual October Convention Number of PAINT AND VARNISH PRODUCTION will feature an interesting staff-industry collaborative article on recent developments and trends in pigment technology.

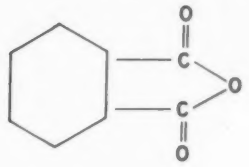
Top experts in the field will provide up-to-the-minute information on Whites, Blacks, Inorganic Colors, Organic Colors, Metallic Pigments, and Extenders and Inerts. In addition, there will be special sections dealing with pigments for industrial finishes, pigments for use in exterior house paints, and a survey of anti-corrosive pigments and their application in marine paints and coatings for structural steel.

For the latest on pigment developments, be sure to read the October issue of PAINT AND VARNISH PRODUCTION.

For Resins, Plasticizers, Surface Coatings & Chemical Intermediates

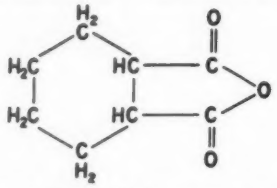
Evaluate all three chemically and economically

PHTHALIC ANHYDRIDE



Phthalic Anhydride (and Maleic Anhydride) are still the dominant low priced, "workhorse" resin intermediates because of their all-around utility in so many applications. But the growing demand for clearer, lighter colored resins and resinous coatings suggests investigation of new intermediates with specific properties adapted to these needs.

HEXAHYDRO PHTHALIC ANHYDRIDE



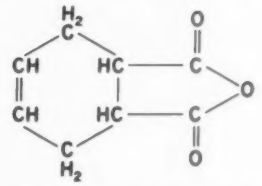
Clear, colorless, viscous liquid, which freezes to a glassy solid.

Molecular Weight: 154.1
Solidification Point: 35-36°C
Boiling Point: 158°C @ 17 mm abs.
Density at 40°C: 1.19 g/ml.

Solubility: Miscible with benzene, toluene, acetone, carbon tetrachloride, chloroform, ethanol and ethyl acetate. Only slightly soluble in petroleum ether.

Superior intermediate for resins and surface coatings where high solubility, high clarity, low viscosity and lightness of color are essential. Excellent for plasticizers in end uses where improved compatibility, lower viscosity and lightness of color are essential.

TETRAHYDRO PHTHALIC ANHYDRIDE



White crystalline powder (Munsell color-lighter than N-9/0)

Molecular Weight: 152.1
Solidification Point: 99-101°C
Density at 105°C.: 1.20 g./ml.
Solubility: Sl.s Petroleum Ether; sl.s Ether; s. Benzene

Particularly valuable for alkyd resins because it produces a lighter-colored resin and so minimizes ultimate color problems in white baking enamels. In plasticizers, it lowers viscosity, melting and setting points.

You know the properties, performance and cost of Phthalic Anhydride. But — have you evaluated the advantages of these two new National dicarboxylic acid anhydrides as alternates for Phthalic?

You may find that Hexahydro Phthalic Anhydride or Tetrahydro Phthalic Anhydride impart properties in your end-products that more than warrant a higher ingredient cost. You may be able to escape the impending "price squeeze" on strictly competitive items by offering a superior product based upon superior raw materials.

SEND FOR TECHNICAL BULLETINS

To widen the use of these interesting new intermediates, we offer technical bulletins giving copious reactions, suggested uses, literature references, etc. Samples and prices will also be sent upon request.

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco
Portland, Ore. Greensboro Charlotte Richmond Atlanta
Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical

PAINT

SA-604 Alkyd Resin has all-around talent!

SA604

ALKYD RESIN

Acid Number	4-6
Color (Hellige)	3-5
Viscosity (Gardner)	Z1-Z3
Specific Gravity	.945-.955
Solids Content	70%
Solvent	Petroleum Spirits

Standardizing on one all-around resin is a practical way to cut down on inventory. SA 604 alkyd is *right* for many jobs: architectural gloss, semi-gloss, and flat enamels, maintenance, marine, and industrial finishes. It has excellent gloss and color retention, brushability, good initial color, toughness and durability.

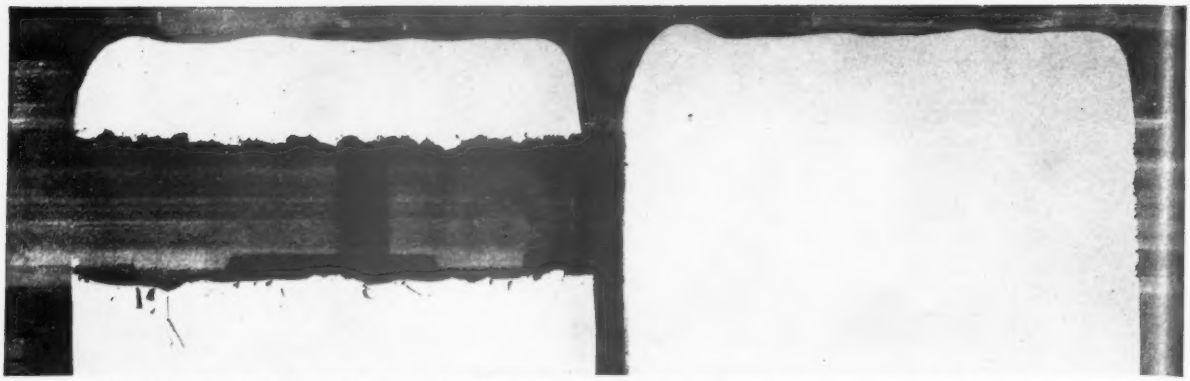
Whether you standardize on an existing resin or need a new special formulation, call your local Schenectady man. He'll analyze your requirements and come up with the right answer.

SCHENECTADY RESINS,
Box 1046, Schenectady 1, N. Y.

In Canada:
Paisley Products of Canada, Toronto 4, Canada
Export Distributors:
Binney & Smith International Inc., New York 17, N. Y.

ANOTHER **SCHENECTADY** RESIN

MANUFACTURERS OF PHENOLIC, ALKYD, MALEIC AND TERPENE RESINS FOR ALL PURPOSES



After 500 cycles with a Gardner straight line scrub tester using a 2% soap solution this .0015 thickness dry film straight latex paint (popular commercial brand) has been completely scrubbed away.

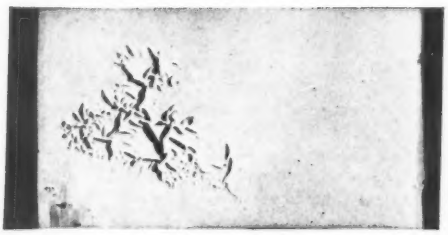
Scrub tested on the same panel, at the same time, latex paint modified with Aroplaz 1274 at 50% of vehicle solids shows no wear. Paints based on Aroplaz 1274 are *really* scrubbable.

For Latex Paints

AROPLAZ 1274

a new, long oil, oxidizing alkyd for fortifying latex paints

- **GREATER ADHESION** to all types of surfaces . . . Even on non-porous enamel, or gloss trim.
- **GREATER WATER RESISTANCE** in the early stages of drying. No long curing period needed with Aroplaz 1274.
- **GREATER RANGE OF PIGMENTATION** — Makes possible adjustment in sheen — from satin to true flat.
- **GREATER ECONOMY** — costs no more than the latex ingredients and permits more economical formulation by permitting greater pigment volume with low-cost extenders.
- **GREATER COLOR RETENTION** — doesn't yellow even after long periods of exposure to sunlight. Maintains true color indefinitely.
- **GREATER HIDING POWER** — can be used over dark or light areas and will completely cover the old surface with one coat.
- **GREATER FREEZE-THAW STABILITY** — can be used after it has been frozen and thawed several times — makes storage and transportation safer.



This blister was caused by a drop of water placed on a latex paint 24 hours after the surface was covered. Water spotting leads to customer complaints and fewer repeat orders.

A drop of water on latex paint modified with Aroplaz 1274 at 50% of vehicle solids 24 hours after application. Aroplaz 1274 has great resistance to water spotting during the EARLY stages of drying. No customer complaints from this.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers Products Corporation
120 Broadway, New York 5, N. Y.
Offices in Principal Cities

YOU'LL BE A JUMP AHEAD...

by selecting from Carbide's wide range of solvents—more than 75 esters, ketones, alcohols, and glycol ethers.

CARBIDE AND CARBON CHEMICALS COMPANY

A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street New York 17, N. Y.

Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

An outstanding example to meet your solvent needs is the versatile glycol-ether, Butyl "Cellosolve." It is an excellent solvent for alkyd, phenolic, and nitrocellulose resins, industrial cleaners, insecticides, and herbicides. Butyl "Cellosolve" is also a mutual solvent in soluble metal-cutting and textile oils.

But no matter what your solvent needs may be, it's always a wise move to check with Carbide and Carbon, the solvent center. For further information on solvents, or any of Carbide's chemicals, write to our sales office nearest you. Ask for your copy of the new booklet, "Physical Properties of Synthetic Organic Chemicals." (F-6136)

COATINGS OF VINYLITE BRAND RESIN

with the give that can take it!

MILK PROCESSING equipment and similar equipment subject to rapid heating and cooling must have coatings with a high degree of flexibility. That's why formulators rely on coatings based on VINYLITE Brand Resins. They "move" with the surface, expanding and contracting as needed . . . adhering tenaciously.

Moreover, VINYLITE Resin coatings are highly wear-resistant . . . can take constant washing, scrubbing, and the scuffs and bumps of people and moving equipment. They're water, grease, detergent and chemical resistant. Properly applied, they stay put, and won't crack, chip, peel or fade.

VINYLITE Resins usually give the flexibility and durability you need to formulate better coatings for dairy equipment, tank cars, oil refineries, marine installations, industrial plants . . . wherever surfaces are exposed to rough treatment, wide temperature changes, chemicals, industrial gases.

Write Dept. QF-75 for folder giving case histories of severe coating applications.

Illustrated is round milk processor made by Cherry-Burrell Corporation, Chicago 6, Ill., and coated with VINYLITE Resin coatings in Cherry-Burrell Blue. Coatings prepared by Stoner-Mudge, Inc., Pittsburgh 33, Pa.

Case Histories Prove Performance

BAKELITE Resin Floor Varnish—Floor finishes based on BAKELITE Resins provide extreme wear resistance that minimizes maintenance costs. A typical case history has been the gymnasium floor of the Sewickley (Pa.) High School—subject to rough daily service from basketball and other events—even school dances. Yet, four years after being coated with an air-drying varnish based on BAKELITE Resin, it still maintained its lustrous surface. No touch-up had been needed, either. And, the stripes and markings applied before the BAKELITE Resin coating were just as sharp and new-looking as when applied.

Special-purpose Industrial Coatings—*Very few industrial coating problems are identical. Minute changes in formulations can make a tremendous difference in satisfaction. Coatings for water purification units are an excellent example. Here, a specially-formulated BAKELITE Resin baking system provided not only the protection normally required for metal equipment, but also protected pipes and tanks against electrical leakage and the corrosive action of ozone.*

VINYLITE Resin Coatings for Railway Equipment—Normal service conditions are tough enough on industrial coatings! Add the problems that railroad freight cars bring...vibration, weather variations, pounding with sledge hammers to loosen loads...and it takes top performance for a coating to stand up. Despite this rough and tough treatment, freight cars of the Illinois Central Railroad, protected with VINYLITE Resin coatings, took this treatment plus rain, heat, cold, sun, corrosive loads and fumes for *over six years*—and the coatings were *still in good condition!*

Structural Finishes for Corrosion-Erosion Resistance—*Another example of how well BAKELITE Resins solve difficult coating problems was the painting of structural steel work on river locks and dams in the Monongahela River. Acid pollution and flow of silt had developed a serious combination of costly corrosion and erosion. Reports stated "ordinary paints are of little value in preventing corrosion and erosion under the conditions described." After seven years' research and testing, the engineers in charge determined that pigmented BAKELITE phenolic resin coatings were superior to any other for this use.*

BAKELITE TRADE-MARK
and **Vinylite** BRAND
RESINS

TRADE MARK

BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N. Y.

Baker Castor Oil Derivatives

are still the

—

most efficient for

NITROCELLULOSE PLASTICIZATION

6 PLUS FACTORS HELP YOU PRODUCE BETTER FINISHES

- Greater gloss and depth of finish.
- Excellent pigment wetting . . . difficult grinding jobs made easy.
- Self correcting . . . not prone to spewing on over-plasticization.
- Adhesion . . . even *a small percentage* corrects adhesion deficiency.
- Better rubbing quality . . . 10% to 30% blown oil to nitrocellulose increases hardness.
- Durability . . . second only to alkyds.

Investigate the advantages of these **BAKER** products

AA®	Refined Castor Oil
Pale 4	Blown Castor Oils
Pale 16	
#15	
#30	
6040-781	Solvent Dispersed Gelled Castor Oil
Flexricin® P-8	Glyceryl Tri-(Acetyl Ricinoleate)
Flexricin® P-4	Methyl Acetyl Ricinoleate

This coupon clipped to your letterhead will bring desired information and samples.

P P-

The Baker Castor Oil Company
120 Broadway, New York 5, N. Y.

Please send samples and technical bulletin 8.

Firm_____

Name & Title_____

Address_____

City_____ State_____

ESTABLISHED 1857

THE Baker CASTOR OIL COMPANY

120 BROADWAY, NEW YORK 5, N. Y.

LOS ANGELES • CHICAGO

Harshaw Driers help maintain your reputation for quality!

In fact, Harshaw Driers protect *two* reputations for quality—yours *and* ours. To make sure they do, strict Harshaw manufacturing specifications demand the following tests on every batch of driers produced at our plant:

- **Metal content**
- **Specific gravity**
- **Color**
- **Viscosity**
- **Total solids content**
- **Flash point (T.C.C.)**
- **Moisture content**
- **Acid value**
- **Miscibility with raw linseed oil**
- **Miscibility with mineral spirits**
- **Benzene insoluble content**
- **Customer's specified tests**

Material released for shipment complies with the strict tolerances necessary for top quality.

Remembering these exhaustive tests, you can order your next batch of Harshaw Driers with the full assurance that they *will* help to maintain your reputation for quality.

LIQUID DRIERS

- **Uversol (Naphthenate) Liquids**
- **Linoresinate Liquids**
- **Lo-Odor Liquids**
- **Linoleate Liquids**
- **Lithos**
- **Octasols**
- **Pastes**
- **Pastalls**

SOLID DRIERS

- **Uversol (Naphthenate) Solids**
- **Linoresinate Solids**
- **Linoleate Solids**
- **Soyate Solids**
- **Fused Resinates**

POWDERED DRIERS

- **Precipitated Resinates**
- **Drying Salts:**
  - **Cobalt**
  - **Lead**
  - **Manganese**
  - **Zinc**

HARSHAW

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

Edgar

ASP PROGRESS REPORTER

INERT PIGMENTS THAT IMPROVE YOUR PRODUCT

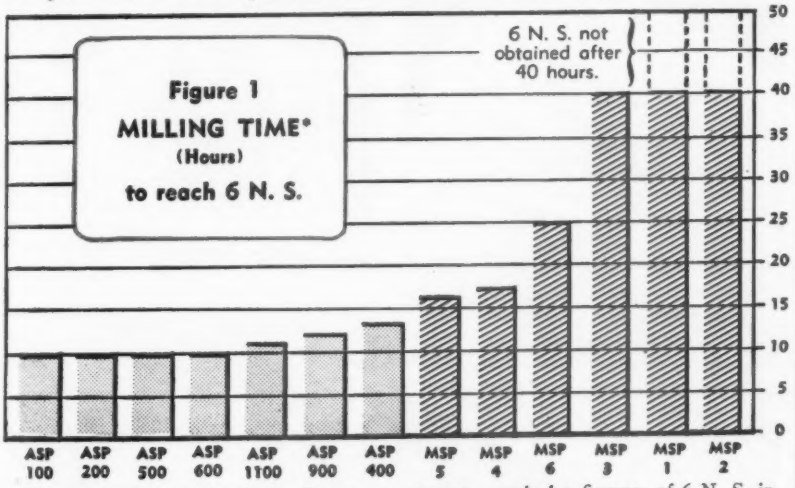
ASP ALUMINUM SILICATE PIGMENTS

PUBLISHED BY EDGAR BROTHERS COMPANY METUCHEN, NEW JERSEY

MILLING TIME GREATLY REDUCED THROUGH USE OF EDGAR ASPs

READY DISPERSIBILITY INCREASES EFFICIENCY— SHORTENS MILLING TIME

One of the most difficult formulations* to grind was selected to establish quantitative data on the degree of dispersibility of Edgar ASPs . . . and to compare this rate of dispersion with that of other inert pigments.



The comparative results on the dispersibility of Edgar ASPs and magnesium silicates (the inerts tested), employing the specification grinding formula, are presented in the accompanying Figure 1. Note that fineness (North Standard Units) is plotted against time in hours. From Figure 1 it can be seen that the slowest ASPs to disperse, ASP 400 and 900, reach a fineness of 6 N. S. more rapidly than even the fastest grinding magnesium silicate tested.

A noteworthy point illustrated by Figure 1 is the small difference in dispersibility between the various Edgar ASPs. ASP 100 and ASP 200, the fine fractionated Aluminum Silicates, reached a fineness of 6 N. S. in 9 to 10 hours each. ASP 400 required approximately 13 hours to reach a 6 fineness. This difference between the end members in the Edgar ASP series amounts to only 4 hours. The rate for ASP 500 and ASP 600, the intermediate fractionated ASPs, was almost the same as that for the fine fractionated ASPs, being about 10 hours. The unfractionated ASP 900 required 12 hours. Edgar ASP 1100, a fine fractionated product coated with 0.5% stearate, reached a fineness of 6 N. S. in about 11 hours.

From this study it can be concluded that Edgar ASPs disperse much more readily and, hence, give good final products.

Figure 2 shows the comparative units ground per hour by both the Daniel Flow Point method and the Specification Grinding formula.

From this it can be seen that when the Flow Point method is followed, the time of dispersion is greatly reduced and comparative units ground per hour much higher. A comparison of results between the two grinding formulas shows, however, that the comparative ease of dispersion of Edgar ASPs over the other inerts tested remains about the same—regardless of whether a grinding formula of high or low efficiency is used.

In high solids formulas such as those established by the Flow Point method inter-particle shear undoubtedly is one of the major forces contributing to dispersion. In roll mill operation this shearing force is, of course, considerably greater. The Edgar ASPs used in this study, because of their fineness, plate-like particle shape and softness, are particularly suited for roll mill formulations.

It can be further concluded, therefore, that this proven time saving in the mill grinding of Edgar ASPs leads directly to increased mill efficiency and production. Logically, with an appreciable reduction in grinding time, more units can be ground when Edgar ASPs are used.

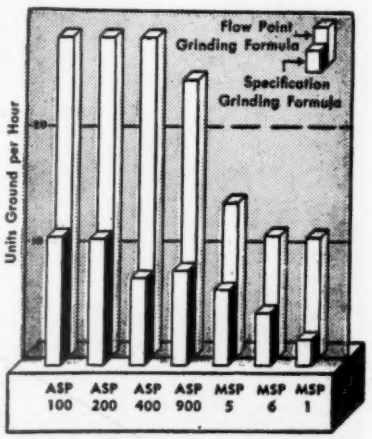


Figure 2. Comparison units ground per hour by Daniel Flow Point method and Specification Grinding formula.

EASY TO TEST

It is easy to test the qualities of Edgar ASPs right in your own formulas. All you need do is use this coupon to order your free sample drum of the ASP best suited to your requirements.

*MIL-P-6889-A . . . Complete report published Vol. 43 January, 1953 No. 1. Paint and Varnish Production.

DOW

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With DOW latex it's easier to make paint that sells faster, and DOW advertising stressing "year-'round" decorating helps *keep* sales high

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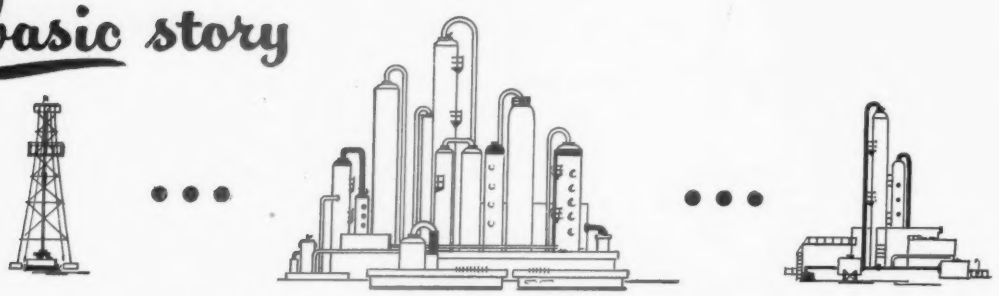

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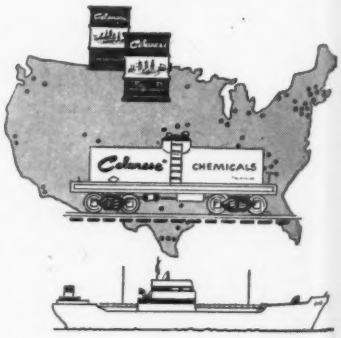

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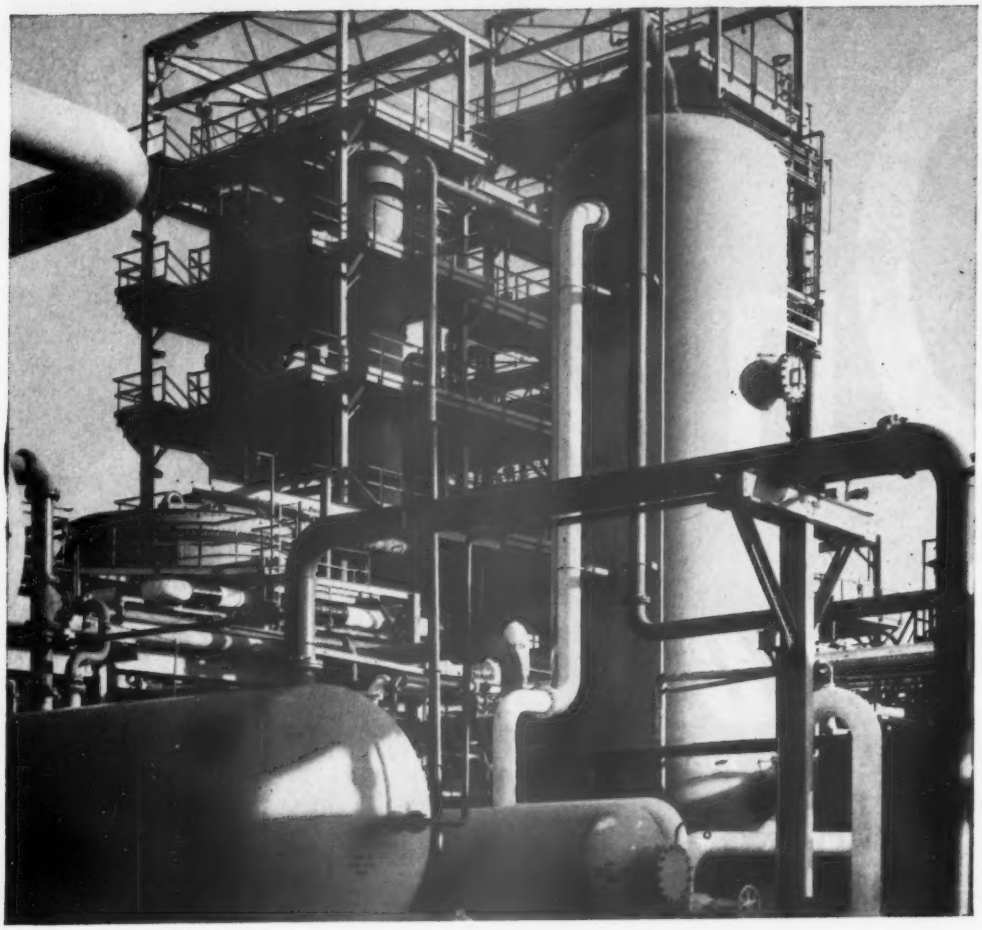

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Aerosol Coating Compositions

By R. C. DOWNING
and F. S. PALMER
"Kinetic" Chemicals Division
E. I. DuPont de Nemours & Co.
Wilmington, Del.

THE APPLICATION of paint products by the aerosol method is similar in many respects to the application by air-spraying. Many of the problems of solvent evaporation, temperature effects and application techniques are common to the two methods. Special formulations of the paint or lacquer are required to give the best result. Painting time is significantly reduced as compared with the use of a brush, and non-uniform objects can be painted with greater ease.

The air-spraying of paints is chiefly an industrial operation requiring an external source of compressed air. On the other hand, the aerosol product has its own self-contained pressure and requires no extra equipment or brush to clean. For many small home jobs and for industrial use in touching-up equipment and machinery of all kinds the aerosol method is not only convenient but economical of time and materials. Some of the factors that influence the formulation of aersol coating compositions are discussed below.

The word "aerosol" is used to describe a wide variety of products formulated with a liquefied gas to provide the dispensing force. The pressure for discharging the product is maintained at a constant, uniform level by vaporization of the liquefied propellent as the material is sprayed from the container. This assures a uniform delivery rate and range of particle size throughout the period of use and permits the entire contents of the container to be discharged.

Only a few of the products fall within the original meaning of finely-divided solid or liquid particles suspended in air like a fog or smog. Space insecticides and room deodorants are examples of self-pressurized formulations that form a true aerosol spray. As used today, the term "aerosol" is also applied to products dispensed as a foam or as a wet spray such as shaving cream, residual insecticides, coating compositions and many other novel and interesting materials. In all of these products, control of the particle size is essential for best results even though the spray is not truly aerosol in nature.

Figure 1. Distribution of the 1952 aerosol production according to the type of product.

Development of Aerosol Market

The aerosol method of application was first used with insecticides for the armed forces during World War II and was so effective that it was extended to the civilian market. Now, not only insecticides but nearly forty other types of products are dispensed by this convenient effective method. The industry has grown rapidly from a volume of 5 million units in 1947 to about 97 million units in 1952, according to a recent survey by the *Aerosol Divison of the Chemical Specialties Manufacturers Association.* The distribution according to type of product is shown in Figure 1. Insecticides still occupy the leading position but other products are growing in volume and importance.

Self-propelled paints and plastic sprays together accounted for seven per cent of the total in 1952. The increase in volume for these prod-

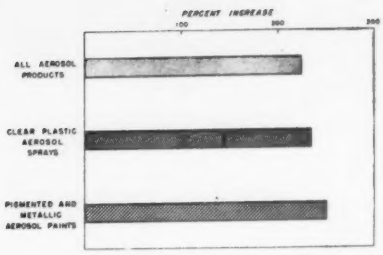


Figure 2. This chart shows the growth of pigmented and clear aerosol paint market in 1952.

ucts compared with 1951 was slightly greater than for the industry as a whole, as shown in Figure 2. The comparison of 1952 with 1951 for number of units produced is given in Figure 3. All of these comparisons point to the fact that aerosol products in general are finding acceptance and that the demand for paint dispensed by the aerosol method is growing.

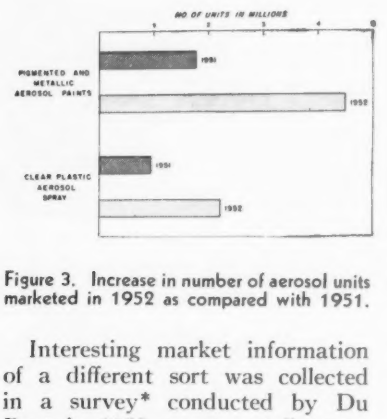


Figure 3. Increase in number of aerosol units marketed in 1952 as compared with 1951.

Interesting market information of a different sort was collected in a survey* conducted by Du Pont in 1952 among retail stores to find out where aerosol products are sold and the extent of coverage. Some of the results for paint products are indicated in Table I. As might have been expected, the aerosol dispensed product was stocked by a higher percentage of hardware stores than the other types of stores interviewed. A smaller percentage of department stores and service stations handles these products.

Although the use of aerosol coating compositions is firmly established and the market is increasing, it is estimated that only about one-half of one percent of the total volume of paint is sold in this form.

*Copies of the survey are available from the "Kinetic" Chemicals Division of E. I. du Pont de Nemours & Co. Inc., Wilmington, Delaware

Formulation of Aerosol Paints

The novelty of paint application by the aerosol method may have influenced the original market, but the continued sale and use of these products will depend on the technical quality of the formulation. The problems connected with the preparation of aerosol coatings have perhaps been more numerous and varied than those involved in other aerosol products. The final proof of any product is the effectiveness with which it does the job for which it is designed.

The first problem in formulating aerosol paints is to ensure that the resulting coating will be equal in appearance to that obtained when paint is applied in other ways. A good brushing paint is the result of a careful blending of solvents, resins and pigments. It is equally important that the proper balance be maintained in aerosol formulations. However, the balance or blend generally will be different than for paint designed either for brushing or air-spraying. Although the aerosol and air-spray application techniques are similar in many respects, there are some differences due to the source of the pressure and the effect of the liquefied propellent on the spraying characteristics of the aerosol product.

In addition to a good coating there are mechanical problems of getting the material out of the aerosol can. Valve design is important from the standpoint of plugging and because it determines, in part, the type of spray delivered. The spray must be sufficiently fine to ensure deposition of a uniform coating while the formation of "permanently" airborne droplets is held to a minimum. The pigment must be easily re-dispersed if it settles out on long standing. All of these problems affect the performance of the unit and the reaction of the consumer as he uses it.

Effect of Propellent

The dispensing force in aerosol products is supplied by the liquefied propellent and the characteristics of the propellent must be considered in formulating the product. The "Freon" fluorinated hydrocarbon propellents are miscible with the paint solvents but they are not soluble in or solvents for the resins. Since the propellent becomes an integral part of the formulation, the viscosity, pressure and compatibility of the final product are affected and should be determined for each new combination. In the following discussion both lacquers and enamels will be considered.

Compatibility with Propellents

The limiting factors in the compatibility of the propellent with the paint base are the solvent power of the propellent and the nature and concentration of the film-forming resin. In the compatibility comparisons shown below, "Freon-12" dichlorodifluoromethane and "Freon-11" trichloromonofluoromethane have been used since they are the propellents commonly employed in aerosol formulations. As an indication of their solvent power, the Kauributanol number for "Freon-12" is 18 and for "Freon-11", 60, compared with a value of 130 for benzene. It would be expected that more "Freon-11" than "Freon-12" could be added to the paint before precipitation or gellation of the resin occurs and this has been found to be true. A comparison with several typical resin solutions is given in Table II.

It is evident that there is considerable variation in the tolerance of different resins for the propellent even if they are of the same general type. This difference depends generally on the degree of polymerization and the extent to which modifying oils are used. To a lesser degree the kind of

TABLE I

Retail Outlets Selling Aerosol Paint Products
Per cent of Dealers Interviewed Who Stock Product

	Hardware Store	Department Stores	Service Stations
Aerosol Paints	44	18	14
Aerosol Plastic Sprays	30	16	10

solvent determines the amount of propellent that can be used with a given solution. For example, more "Freon-12" dichlorodifluoromethane could be added to an "Aroplaz" 1365 solution in xylene than in a solution containing mineral spirits. Very little difference in compatibility was found between resin concentrations of 30% and 40% but it is expected that the difference would be appreciable at lower resin concentrations.

In using these compatibility figures as an index of maximum propellent loadings, allowance should be made for the fact that the figures refer to precipitation points, and in actual practice amounts appreciably less than those indicated by the compatibility should be used in order to provide a margin of safety. All of these measurements were made at room temperature and at lower temperatures the compatibility probably would be less.

In many cases, solutions of "Freon-12" dichlorodifluoromethane and "Freon-11" trichloromonofluoromethane are used as the propellent and for these solutions the compatibility is that expected from the individual compounds. The change in the compatibility with typical alkyd and lacquer solutions for different concentrations of "Freon-12" and "Freon-11" is illustrated in Figure 4. The upper limit for "Freon-11" was not determined for the alkyd solution but is higher than would be encountered in practice.

The curve shown in Figure 4 do not represent real differences between alkyd and lacquer solutions and other examples of each might have quite different compatibilities. The relatively low compatibility of the lacquer used in the illustration is due, in part, to the nature of the alkyd resin used in the formulation. In this case the alkyd has been modified with a fairly small amount of non-oxidizing oil in order to preserve the fast drying properties of the lacquer.

Pressure and Consistency Relationships

The pressure and consistency of the final packaged paint formulation seem to be the controlling factors in determining the quality of the spray. The term "consistency" is used here in referring to the viscosity of the aerosol coating compositions. Available instruments for measuring this property were not suitable for use with materials having a pressure higher than atmospheric so a special apparatus was designed (1). The consistency is expressed in seconds and is the time required for a small steel cylinder to fall through a given height of liquid. Numerically, it is roughly similar to the viscosity in centipoises but has no theoretical significance. The complete aerosol formulation including propellent is used under pressure so that the value obtained applies to the material in the final package. The pressure also can be measured in the same apparatus.

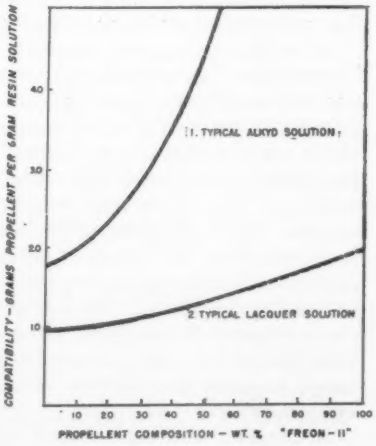
It has been determined experimentally that the quality of the coating obtained from the aerosol product depends on the relationship between the pressure and the consistency. This relationship is shown in Figure 5 for enamels (solid lines) and lacquers (dotted lines). Combinations of pressure and consistency falling in the area to the left of the

TABLE II

Compatibility of "Freon" Propellents with Resin Solutions

Composition of Resin Solution	Compatibility in grams of "Freon" Propellent/gram of Resin Solution	
Alkyd	**"Freon-11"**	**"Freon-12"**
"Aroplaz" 1365X 40%, Xylene 60%	5	1.8
"Aroplaz" 1365X 30%, Xylene 70%	—	1.8
"Aroplaz" 1365X 30%, Xylene 20% mineral spirits 50%	—	1.3
"Glyptal" 2462 40%, Xylene 60%	5	1.6
"Glyptal" 2532 40%, mineral spirits 60%	4	1.5
"Glyptal" 2504 40%, mineral spirits 60%	—	4
"Beckosol" No. 23 20%, isopropyl alcohol 20%, methylisobutyl ketone 60%	2.3	0.8
Nitrocellulose		
RS — ¼ sec. 20%, isopropyl alcohol 20%, methylisobutyl ketone 60%	3.6	1.8
RS — ½ sec. 20%, isopropyl alcohol 20%, methylisobutyl ketone 60%	3.6	2.2

Figure 4. Change in compatibility of "Freon-11" trichloromonofluoromethane-"Freon-12" dichlorodifluoromethane propellent with resin solutions as the concentration of "Freon-11" is increased. (1) Using a 40% solution of "Aroplaz" 1365X in xylene. (2) Using a lacquer formula made up of the following: 25% solids (1 part of nitrocellulose and 1 part "Beckosol" No. 23) in a solvent composed of 10% isopropyl alcohol, 10% butyl "Cellosolve" and the balance consisting of MIK (methylisobutyl ketone).



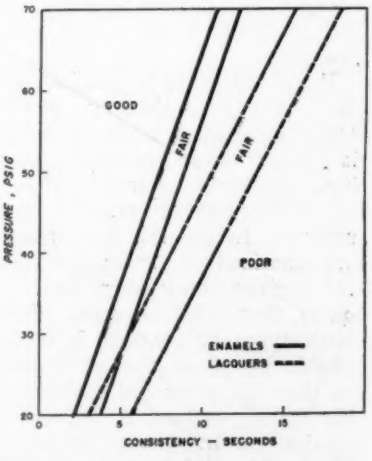


Figure 5. This graph shows the relationship between consistency, pressure and spraying characteristics of aerosol enamels and lacquers.

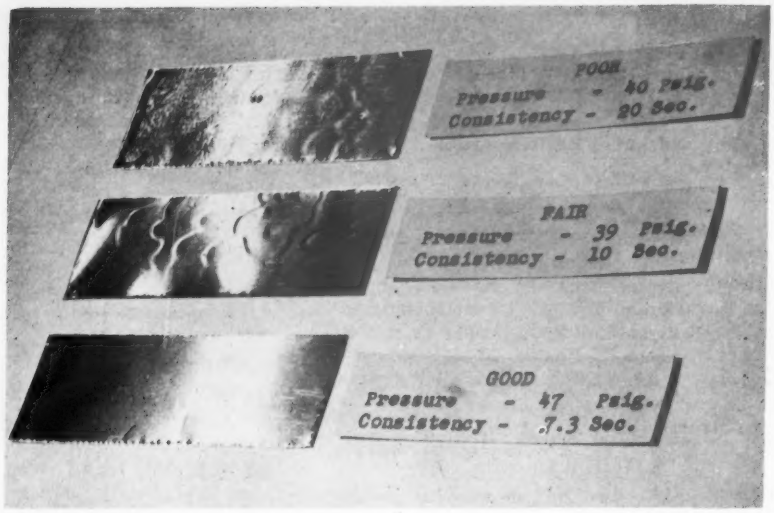


Figure 6. Illustration of pressure-consistency relationship for aerosol lacquers (see Fig. 5.)

lines generally give good results and in the area to the right of the lines, poor results. The chart is not a rigid and inflexible indicator for product quality since many factors other than the pressure and consistency have important effects on the properties of the finished films. The evaluation of the coating has been visual and to a certain extent subjective. In practice, the boundaries are not as sharply defined as they are on the chart and there may be some overlap of one area into the next. However, the chart has been a useful guide in the formulation of aerosol coatings as a means of predicting the performance of aerosol compositions.

From the chart it can be seen that as the consistency or viscosity increases a higher pressure is required to produce a good coating. At lower pressures the acceptable consistency range is fairly narrow. In general, good sprays are obtained at lower pressures for a given consistency with lacquers than with enamels. With both types of coatings it is desirable to adjust the relationship so that the point lies well within the "good" region but this can be carried too far. Compositions represented by points too far to the left tend to produce excessive amounts of fine particles or droplets in the spray.

The three different types of coatings corresponding to the areas in the chart are illustrated in Figure 6. Typical clear lacquer formulations were used in preparing these examples.

Factors Affecting Consistency

Since the spraying characteristics and quality of the final coating depend to a considerable extent on the consistency of the liquid in the complete formulation, it is necessary to carefully control this property. In general, the consistency is directly influenced by all of the materials in the composition. The most important of the constituents, however, are the resin, the solvents and the propellent.

Type of Resin

The type and concentration of the resin used as the basic film-forming material is perhaps the most important factor in determining the consistency of the product. For nearly all types of resins, the consistency increases when the molecular weight and degree of polymerization are increased. These properties, generally, govern also the amount that can be satisfactorily dissolved in the formulation. For a given type of resin, the hardness and durability of the resulting film are directly related to the extent of polymerization. It is necessary to obtain a satisfactory balance between the characteristics of the applied film and the concentration of the resin, always keeping within the consistency range required for suitable spraying properties.

In enamel coatings, based on alkyd type resins, the resin is usually modified with a drying oil such as linseed, soya, dehydrated castor, etc. The commercial resin solution may contain from 30 to 50 per cent or more oil, and, in addition to its effect on drying rate and other properties, the amount of oil present influences the consistency of the solution. In general, the higher the concentration of the modifying oil the lower will be the consistency, assuming that the comparison is based on the total modified resin.

This difference is illustrated in Figure 7 with two representative alkyd resin solutions. The data for the curves shown there were obtained on a 70% solution of "Glyptal" 2466 in mineral spirits and a 60% solution of "Aroplaz" 1365X in xylene. "Glyptal" 2466 is a highly modified resin and has a lower initial consistency than the less-modified "Aroplaz" 1365X even though it is used at a higher concentration. Some of this difference may be due to the different solvents used, but the major effect is due to the degree of modification.

Differences in nitrocellulose also may cause differences in the consistency of lacquer formulations. For example, in Figure 7 it can be seen that the initial consistency of lacquer C is nearly there times that of lacquer A although the formulations, as shown in Table

Figure 7. Change in consistency of resin solutions by addition of solvent. Mineral spirits was used as diluent for alkyd solutions. Lacquer formulations diluted with ethyl acetate.

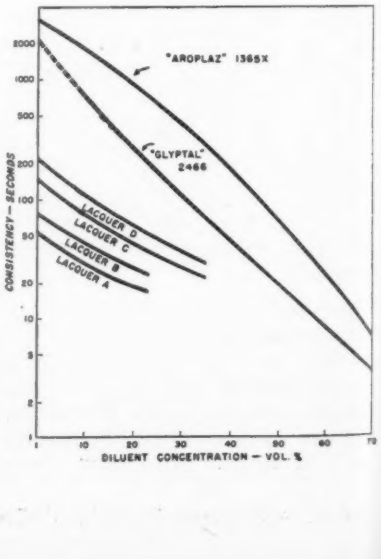


TABLE III

LACQUER COMPOSITIONS USED IN FIGURE 7

Component	Amount Present, Wt. % A	B	C	D
Solids: 25%				
Nitrocellulose — RS-¼ sec.	43.5	43.5	—	—
Nitrocellulose — RS-½ sec.	—	—	43.5	43.5
"Beckosol" No. 23 alkyd resin	43.5	43.5	43.5	43.5
Dibutylphthalate	13	13	13	13
Solvent: 75%				
Methylisobutyl ketone	75	—	75	—
Butyl Acetate	—	75	—	75
Isopropyl alcohol	10	10	10	10
Butyl "Cellosolve"	10	10	10	10
Toluene	5	5	5	5

III, are similar except for the nitrocellulose.

Solvent

In the preparation of coating compositions for aerosol use, the resin solution usually must be thinned with additional solvents so the consistency of the final product will be in a suitable range. The choice of solvents used for this purpose has a bearing on the consistency, especially in the thinning of lacquer formulations. In general, the type of solvent in which the nitrocellulose is most readily soluble is most effective in reducing the consistency. Ketones and esters would fall in the effective class while hydrocarbons, although often used as thinners, are not good solvents. In Figure 7, the lower initial consistency when methylisobutyl ketone is used as the major part of the solvent system (lacquer C) is shown as compared with butyl acetate (lacquer D). The difference is not large but in some formulations it may be significant.

The consistency could be reduced by the addition of further quantities of these same solvents but in the examples in Figure 7 ethyl acetate has been used. In cases of this sort, it is often desirable to use a relatively volatile thinner if the original solvent system contains a high proportion of high boilers. The relative decrease in the consistency as ethyl acetate is added is about the same for all of the lacquer formulations.

The effect of solvent composition is greater with nitrocellulose lacquers than with enamels but, in general, the same trend is found —the better solvents cause greater reductions in the consistency. For example, with typcial alkyd resins, the aromatic solvents such as xylene and toluene give less viscous solutions than mineral spirits. Oxygenated solvents such as n-butanol and methylisobutyl ketone are also effective in reducing the consistency. These differences among the various solvents are related to the degree of modification of the resin. The effect of the more powerful solvents on the consistency is less with highly modified resins.

Propellent

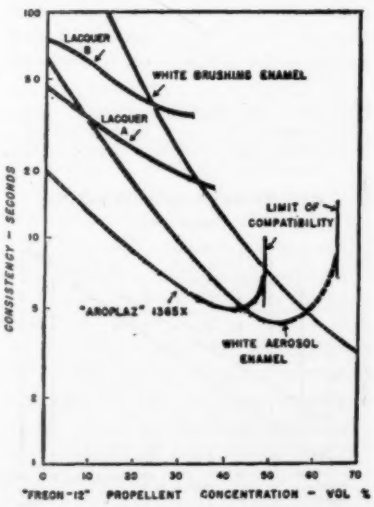
The changes in the consistency due to resin and solvent type might apply to coating formulations for any purpose. For aerosol use, however, the effect of the propellent also must be considered. The propellent used in all aerosol formulations is a liquefied gas, which means that most of the propellent in the container is in the liquid state. Since it is miscible with the solvents in the formulation, the effect on the consistency is the same as though an ordinary poor solvent had been used as a diluent.

Examples of the effect of "Freon-12" dichlorodifluoromethane on the consistency of typical enamels and lacquers are shown in Figure 8. The initial "Aroplaz" 1365X solution contained 30% of the resin, 20% xylene, 43% mineral spirits and 7% methylisobutyl ketone. The composition of the pigmented white paints is not known but they are included here to illustrate the effect of the addition of "Freon-12" to completely formulated enamels. It is interesting to find that as the limit of compatibility is approached the slope of the curve changes and the consistency of the solution begins to rise. This behavior emphasizes the necessity of allowing a margin of safety, with respect to propellent concentration, when dealing with a resin propellent system of limited miscibility.

The reduction in consistency when "Freon-12" is added to the lacquer formulations appears to be less than with the lakyd solutions even though the solids concentration in the lacquers is lower. It is not certain whether this is true for all nitrocellulose compositions or is peculiar to the systems studied. The curves shown in Figure 8 are intended only to illustrate the general trend and the curve for a particular formulation might be quite different. The effect of the solvents on the consistency is again illustrated since lacquers A and B are identical except for the use of methylisobutyl ketone in A and butyl acetate in B.

"Freon-12" dichlorodifluoromethane has been used to illustrate the thinning effect of the propellent but the effect is very similar for the other "Freon" fluorinated hydrocarbon propellents. Solutions of "Freon-12" and "Freon-11" trichloromonofluoromethane are used in many paint formulations and tend to produce a somewhat greater change in the consistency than "Freon-12" alone.

Figure 8. Change in consistency of resin solutions by addition of "Freon-12" propellent.



PRESSURE-TEMPERATURE RELATIONSHIPS OF "FREON" PROPELLENTS

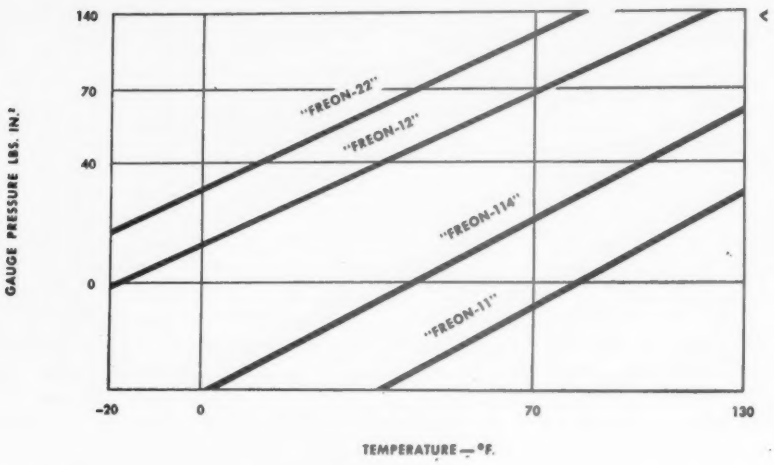


Fig. 9. Change in vapor pressure of "Freon" fluorinated hydrocarbon propellents with temperature

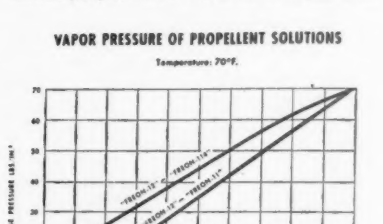
Factors Affecting the Pressure

As noted above the over-all pressure of the aerosol coating formulation is a factor in controlling the quality of the spray and the resulting film. The pressure is also important because it is regulated by the ICC for interstate shipment. The pressure in aerosol products is supplied by the liquefied gas propellent and is maintained at a constant, uniform level by the vaporization of the liquefied propellent as the material is sprayed from the container. This steady pressure assures a constant rate of discharge and ensures that the entire contents of the container will be used. The principal ways in which the pressure can be controlled include the choice of propellent, the concentration of the propellent, the concentration of the propellent and the type of solvent.

Propellent Type and Concentration

Individual propellents may vary in pressure from less than atmospheric for "Freon-11" trichloromonofluoromethane to 122.5 psig at 70°F. for "Freon-22" monochlorodifluoromethane as shown in Figure 9. In additoon, any intermediate pressure can be obtained by using solutions of two or more of the pure compounds. The range of pressures produced by two such solutions—using "Freon-12" dichlorodifluoromethane with "Freon-114" dichlorotetrafluoroethane and "Freon-12" with "Freon-11"—is illustrated in Figure 10. In the aerosol formulation, the pressure of the propellent is reduced by the presence of miscible solvents. The extent to which the pressure is lowered depends primarily on the relative amounts of propellent and non-volatile formulation. Figure 11 shows the increase in vapor pressure when the concentration of "Freon-12" in various typical solvents is increased.

Figure 10. This chart shows change in vapor pressure of typical "Freon" fluorinated hydrocarbon propellent solutions with temperature.



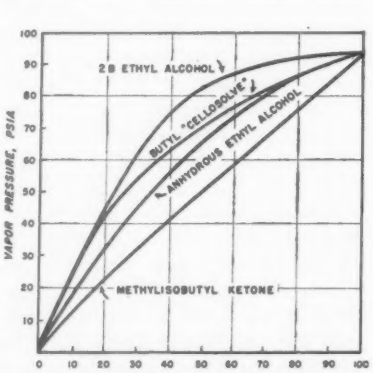


Figure 11. Vapor pressures of solutions of "Freon-12" in various solvents at 25°C (77°F).

Solvent Type

The type of solvents used in the coating formulations has some effect on the pressure as can be seen in Figure 11. In some cases, as with ethyl alcohol or butyl "Cellosolve", the pressure of solutions with "Freon-12" is quite a bit higher than might have been expected. With other types of solvents such as the higher boiling ketones and, in general, with hydrocarbons and halogenated compounds, the vapor pressure of solutions is more "normal".

The effect of the solvent is generally different with different propellents and in some cases the resulting solution may have a vapor pressure lower than expected. In a few cases, azeotropic mixtures may be formed and the solution may have a vapor pressure higher or lower than any of the individual components. For coating formulations, the solvent effect on the pressure is usually much less than changes in propellent concentration but in some systems it may be significant.

Miscellaneous Considerations

Most of the formulation problems found in lacquers and enamels designed for brush application or air spraying, such as sagging, orange-peel, gloss, lifting of a first coat, bubbling, blushing, etc., are also problems with the aerosol products and generally can be solved by standard methods. The presence of the propellent and low boiling solvents in the aerosol formulation may, however, exaggerate some of the effects. This is particularly true in the blushing of some lacquers caused by the condensation of moisture on freshly applied coatings and precipitation of the resin. The rapid evaporation of the propellent tends to lower the temperature of the coating more than would be found with brush-type lacquers. The

(*Turn to page 73*)

Dispersing With Kinetic Energy

SUGGESTED METHOD FOR DISPERSING PIGMENTS IN LATEX SYSTEMS

MANY PAINT manufacturers have hesitated about going into the latex paint business—not so much because of the technical problems involved, but because of the production problems that have beset this field. These problems are well known today;—corrosion from water and alkali, excessive wear on conventional milling equipment, low yields, low rates of production, poor and unstable dispersions, low hiding per pound of pigment used, contamination of other systems—and a host of others. There are fundamental reasons for all of these problems.

Basically, conventional dispersion equipment was developed to handle pigments in oily or resinous mediums that protect the equipment against corrosion. Corrosion was not a paint plant problem and therefore existing equipment was not expected to be corrosion resistant.

Similarly, in conventional paint systems pigment dispersion has been based predominantly on shearing forces, either by the application of low shear for long periods or high shear for short periods. The structoral strength and the adhesive and cohesive character of the liquids employed were depended upon to transmit work to pigment aggregates and produce dispersion. To obtain pigment dispersion thru shear there must be a stronger bond at the pigment-liquid and liquid-milling surface interfaces than there is between pigment particles within the aggregate. Otherwise shear would take place at these interfaces rather than thru the aggregate.* Unfortunately water and water mediums have little or no tack, adhesive, or cohesive strength and are therefore fundamentally unsuited to transmit shear to produce dispersion.

In addition to the complete lack of the necessary liquid characteristics to produce dispersion through shear, the aqueous dispersion mediums are also essentially void of lubricating properties. This permits direct contact between the dispersion solids and the milling surfaces, and where abrasive materials, such as the hydrophillic pigments and extenders are used, excessive wear is the unavoidable result. This is particularly true where close tolerances are required for dispersion. It has not been uncommon for milling surfaces to be abraided beyond usefulness in a matter of hours under these conditions.

The fundamental cause of pro-

*W. H. Hoback, Official Digest, May, 1951.

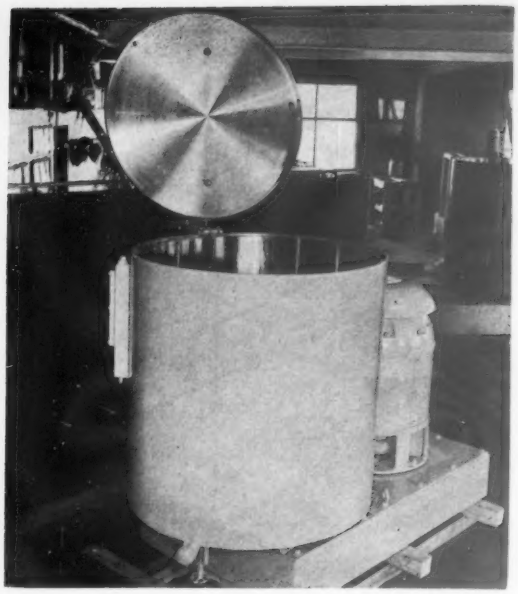


Fig. 1. View of "Kady" mill.

duction problems connected with dispersions for latex can be summed up briefly by saying that conventional milling equipment depends on an oily liquid medium for its efficiency and since aqueous mediums are not oily in character, production problems naturally arise.

When the "Kady" mill was introduced three years ago, with its ability to disperse in non-tacky liquids, its freedom from close milling tolerances and its application of kinetic energy rather than shear for dispersion work, it naturally followed that this unit could be used in dispersing pigments in latex systems. Another feature claimed by the manufacturer is an interior constructed of non-corrosive, stainless steel, which is said to eliminate yield losses and is also extremely quick and easy to clean between runs of different colors.

Principle of Operation

Perhaps for those who have not yet become familiar with this mill a brief description and a statement of the principle on which it operates is in order. Figure I shows an external view of the "Kady". It consists simply of an entirely new and patented dispersion head incased in a seamless, stainless steel batch tank and driven by a powerful motor to provide a high order of energy input.

The kinetic dispersion principle on which this particular mill operates is based on the concept that agglomerate masses given high speed acceleration, in as low a viscous carrier as possible, can have sufficient kinetic energy imparted to them to cause considerable work to be done thereon at the moment of impact against a fixed plane across the path of the agglomerate motion. To illustrate, let us assume an example as shown in the force diagram, Figure 2. An agglomerate mass (A) of unit weight is travelling through an arc of radius R with forces F_1 tangentially and F_2 radially. If this mass (A) was propelled by a rotating member acting as a "pusher" within the circle it would have kinetic energy stored but not usable for our purpose. This energy can be put to work by simple means as illustrated in Figure 3.

By opening a slot in the closed circle the moment mass A reaches that point it will travel in a direction away from the radius in which it was moving and will assume a path approximately F_3 which is the component of the tangential force F_1 and the radial force F_2. The mass can only travel the width of the slot in this direction F_3 but during this travel the mass has free kinetic energy appropriately equal to ½ its weight times the

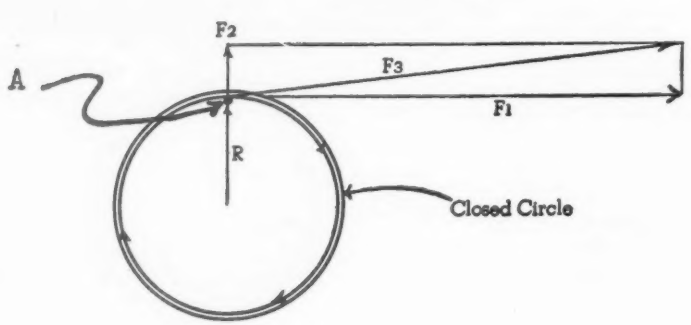
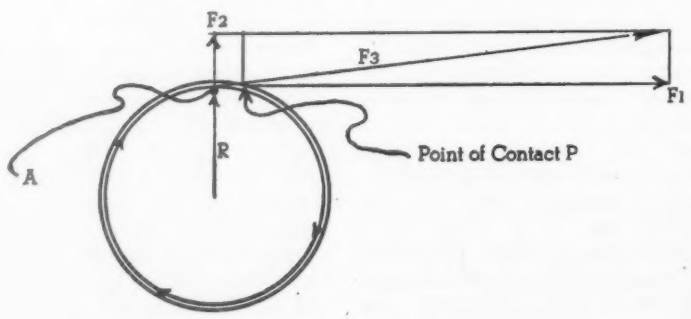


Figure 2. Force diagram showing kinetic energy principle.

Figure 3. Diagram illustrates how kinetic energy can be put to work.



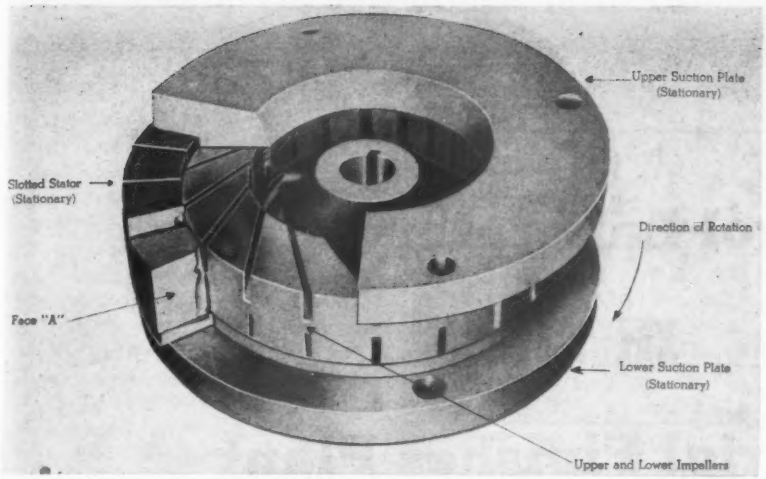


Figure 4. This cut-away view illustrates the work head of the "Kady" mill. Impellers shown are one type of a series of designs for special purposes. Clearances between moving and fixed parts on this mill are comparatively broad, since it does not depend on shearing force in thin films for the dispersing actions.

square of its velocity. This kinetic energy is converted instantly to work at the moment the mass is stopped by the slot face P which is at right angles to the path of travel. Secondary and tertiary reactions within the slot length are the additional factors contributing to the total work which can be done on the mass A. If the slot face material is harder than the agglomerate mass, the work energy performed goes into breaking up the agglomerate into its smaller components.

The kinetic dispersion system utilizes this theory in its work head by introducing a series of impingement faces around the circular member within which a high speed impeller imparts terrific acceleration to an agglomerate mass which is to be dispersed. Figure 4 shows a cut-away of the work head with the stator member sectioned.

It is obvious from a consideration of the principle on which this mill operates that not only is the low tack of aqueous pigment systems no disadvantage, but is actually a distinct advantage since viscosity induced by tack or "stickiness" in a dispersion liquid would tend to retard the velocity of the aggregate mass thrown by the rotor against the impact surface of the stator. The lack of tack in aqueous dispersion mediums therefore provides for maximum dispersion efficiency in this mill.

Practical Results

The reduction of these principles to plant practice has demonstrated the validity of the theoretical consideration. It is reported that single batches of 165 gallons aqueous pigment pastes capable of extension to 370 gallons of highest quality latex paint have been produced in as little as 20 minutes. The theoretical capacity of a single 165 gallon unit on this basis is therefore over a thousand gallons per hour.

Obviously this is not a practical figure since no operation can be 100% efficient nor can all dispersions be accomplished in 20 minutes. A 30-35 minute cycle has proven quite a practical average and regular schedules ranging from 1500 to 3500 gallons per eight hour shift on a series of colors have been set up. For running white only these figures can be materially increased.

So far in this discussion we have concerned ourselves only with the problem of pigment dispersion. In addition, however, we must consider the formation of modifying emulsions if these are to be used. In this phase of the problem the mill has been reported to be useful. Figures 5, 6, & 7 show graphically the relative particle size and homogeneity of emulsions made in this mill.

It will be noted from these photomicrographs that the "Kady" not only produces a highly uniform particle size but also provides a means of particle size control.

While the "Kady" has provided the right answers to production problems in latex paints it is by no means confined to that field. It is also writing a new chapter in the dispersion book in all phases of the industry.

PHOTOMICROGRAPHS

The photomicrographs below are representative of the emulsions formed in the "Kady" mill. Average particle-size on the 25 minute run is less than one-half a micron with only an occasional alkyd particle up to 1 micron.

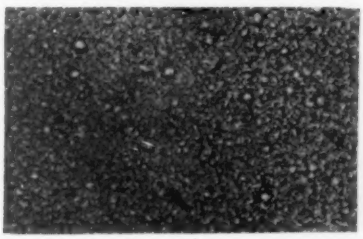


Figure 5. Mill emulsion—10 minutes

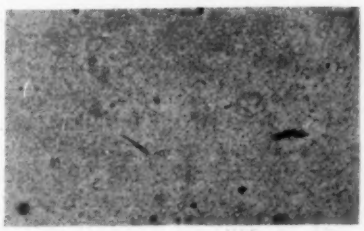


Figure 6. Mill emulsion—20 minutes

Figure 7. Mill emulsion—25 minutes

The Control Laboratory's Place In The Industrial Finishes Plant

THE creative imagination of the formulator combine with the presentation and enthusiasm of the salesman, to obtain new accounts — and hold on to the old — for the manufacturer of industrial organic finishes. The very nature of this business minimizes the importance of the "stock" item whch is the basis for a trade sales line. Rather, it necessitates that virtually all products be custom-formulated to the consumer's individual requirements. Multi-purpose formulas are the exception rather than the rule.

The responsibility for the varied and numerous testing procedures which insure that all outgoing materials meet prescribed specifications falls upon the Production Control Laboratory. It is difficult to obtain a dispassionate view of the collective individuals who constitute a "control lab". To the factory, they appear as exacting demons, content with no less than perfection. The sales department and production planner see them as slow, exasperating, time-consumers. And, when a customer complaint is entered, they are first on the list of erring suspects. Ruining the company's reputation! Extremes? Perhaps. In proper perspective, *the control laboratory acts as the customer's representative in your plant.*

This primary purpose as guardian should not be forgotten. It can explain and justify virtually any action necessary for the production of an acceptable material.

Personnel

In a plant manufacturing industrial organic finishes, productive capacity will determine the number of people in the control laboratory. As output increases above 1,000 gallons per day, more than merely a few employees will be required. At the 5,000 to 10,000 gallon level, seven to 12 or 15 people are necessary to handle the work load.

Perhaps in this laboratory more than in any other phase of the technical aspects of paint manufacture, intimate and long-term acquaintance with the products of the company are essential prerequisites to the successful treatment of problems as they occur. In addition, a working knowledge of the chemistry of organic finishes — the why's and wherefore's of formulation — is necessary to adequately cope with the never-ending crises of production control.

Both of these requirements (experience and training) in many laboratories are possessed almost solely by the head of the group. The remainder of the personnel, doing routine tasks such as taking viscosities, weights-per-gallon, solids, etc., usually consists of partially-trained young workers, and one or more newly employed chemists making the "rounds" of the

various laboratories as part of their indoctrination program. The few older hands do the bulk of the decision-making, testing, evaluating and approving. It is to be regretted that this laboratory, one of the plant's most important scientific functions, is in many cases the least ably staffed.

In smaller organizations only a few people will handle all of the work, performing routine tasks, as well as those calling for greater knowledge. Organizationally speaking their leader will probably be the head of the whole technical staff, rather than existing as a unit of the laboratory with their own group leader, which is the practice in larger set-ups. In recent years, the tendency has been to remove the product control laboratory from the supervision of the plant manager, and place it either under the general supervision of the technical director or, in some instances, set it up as an autonomous group.

Functions and Records

The control laboratory's duties enter the over-all picture after the batch of material has been made in the factory. This follows, of course, placement of the order, scheduling and the purchase of any raw materials not in stock.

Larger factories cook sizeable quantities of their own intermediates, such as alkyd resins and varnishes. In such instances, because the material is already completed, laboratory checking serves merely to "OK", to condemn in rare instances, or to mark the batch for adjustment. The following control tests are suggested for running on cooked resinous materials: total non-volatiles, viscosity, acid number, color, weight-per-gallon, and drying time where applicable. Some materials will necessitate further tests, such as incorporation in an enamel or clear, and testing of that "complete" material. Other intermediates, such as cellulosic and hard resin solutions only require a solids determination and weight-per-gallon. Pigment dispersions may be checked in a number of ways. The age-old test of drawing one spatula over another is often used. A more valid criteria is a comparative scrape-down against a standard retain of the particular dispersion, with a 1/4-inch diameter metal rod. It is preferable when in doubt to incorporate the dispersion in an appropriate enamel, apply to a piece of metal, air dry or bake, and check the results against a standard panel. There will be occasions when a dispersion which is not quite up to standard could be approved for use in an enamel which must subsequently be centrifuged for cleanliness and top quality gloss.

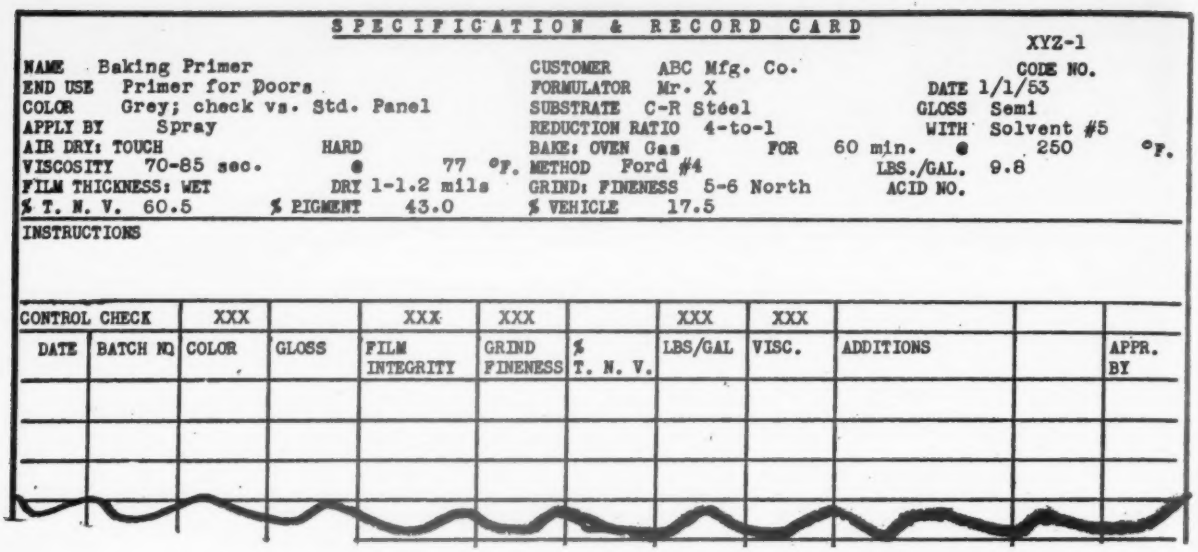
Most of the control laboratory's efforts, however, will be directed toward the approval of finished goods to be shipped directly to the customer. Because of the infinitely varied products that are made, specific tests to be conducted on each material must be determined by the formulating laboratory. The standard specifications and inspection record card is the means to translate the formulator's knowledge and desires into production reality.

Recording and keeping the data for this form may be done by any

MASTER FORMULA			XYZ-1
NAME Baking Primer			CODE NO.
CUSTOMER ABC Mfg. Co.		DATE	1/1/53
END USE Primer for Doors		SUBSTRATE	C-R Steel
APPLY BY Spray		COLOR	Grey
REDUCTION RATIO 4-to-1		WITH	Solvent #5
AIR DRY: TOUCH		HARD	
BAKE: OVEN Gas	FOR 60' @ 250 °F.	GLOSS	Semi
VISCOSITY 70-85 sec.	@ 77 °F.	METHOD	Ford #4
GRIND Pebbles	FOR 24 HRS.	FINENESS	5-6 North
PASTE LBS/GAL 13.9		FINISHED LBS/GAL	9.8
FILM THICKNESS: WET		DRY	1-1.2 mils
% T.N.V. 60.5	% PIG. 43.0	% VEHICLE	17.5
FORMULATOR Mr. X		LAB BOOK NO.	123-A
RAW MAT. COST $1.69/gal		BULK COST	$2.03/gal
COMMENTS Check color against standard; use Paste Line #2 to tint.			

MATERIAL	POUNDS / GALLONS	INSTRUCTIONS
Inert Pig. A	20--	
White Pig. B	10--	
Black Pig. C	3--	
Alkyd D	20--	
Solvent E	1-64	
GRIND AS INSTRUCTED, ADD:		
Alkyd D	15--	
Solvent F	1-64	
Solvent E	--96	Visc. Adjustment
	100--	

Figure 1. Master formula card includes all data on manufacture and use of the material.



SPECIFICATION & RECORD CARD

XYZ-1

NAME Baking Primer — CUSTOMER ABC Mfg. Co. — CODE NO.
END USE Primer for Doors — FORMULATOR Mr. X — DATE 1/1/53
COLOR Grey; check vs. Std. Panel — SUBSTRATE C-R Steel — GLOSS Semi
APPLY BY Spray — REDUCTION RATIO 4-to-1 — WITH Solvent #5
AIR DRY: TOUCH HARD — BAKE: OVEN Gas FOR 60 min. @ 250 °F.
VISCOSITY 70-85 sec. @ 77 °F. — METHOD Ford #4 — LBS./GAL. 9.8
FILM THICKNESS: WET DRY 1-1.2 mils — GRIND: FINENESS 5-6 North — ACID NO.
% T. N. V. 60.5 % PIGMENT 43.0 % VEHICLE 17.5

INSTRUCTIONS

CONTROL CHECK		XXX		XXX	XXX		XXX	XXX			
DATE	BATCH NO	COLOR	GLOSS	FILM INTEGRITY	GRIND FINENESS	% T. N. V.	LBS/GAL	VISC.	ADDITIONS		APPR. BY

Figure 2. Specification and record card. Kept in production control laboratory, this form is a continuing record of production. It includes all information required to test and approve a material, data for which is taken from the master formula card. Any appropriate changes can be made to handle the specific problems of the various individual plants.

number of methods. A common way is to type across the top third of an appropriately printed file cabinet-size card (8½" x 11"), the pertinent and requisite information required to adequately test the material. See Fig. 2. The bottom two-thirds and the reverse side contain parallel columns corresponding to the printed data above — in addition to space for the lot number, size of batch, additions for viscosity or solids, and the initials of the approving chemist. Such a record should, of course, also be kept for intermediates as well as finished products. If warranted, two or more card forms might be used, depending on the type of material being inspected, so only that data which is pertinent would be printed for recording. Thus, acid number might be important for resin testing, but almost never for lacquers or synthetic enamels, and therefore would appear on the inspection record card of the former, but not the latter.

Across the top of the card should appear the name of the customer for whom the product is formulated, code number and name of the material, and the following standard information: method of application, (spray, brush, dip, roller coat, etc.), reduction for application, substrate (type of metal, wood, cloth, etc.), drying time (baking schedule, air dry to touch, etc.), whether or not the material is to be color matched, if it is pigmented, viscosity limits, weight-per-gallon, non-volatile content, hiding power, acid number, gloss, and any other necessary information for proper testing of the product.

Those items to be accounted for by the control laboratory should be indicated in red by the formulator. This method forms a permanent and continuing record of the production control exercised over the products of the factory. As many as 50 batches might be recorded on one card, depending on space requirements.

As an adjunct to careful and precise record-keeping, the proper filing of retain panels and wet samples must be practiced. The former are made in the laboratory. The latter come from the factory and should be representative samples drawn from the material as it is being filled off. These three — complete data, retain panels and batch samples — are the product control laboratory's record of conscientious performance of a difficult task.

The spice and zest for the job would soon be lost in routine batch adjustments were it not for color matches, wrinkle control, hammered-effect patterns, and innumerable other specialties that are included in the work of this laboratory.

Over-All Picture

Charged with maintaining the high standards of quality which a company's products must consistently meet in these competitive days, the product control group's responsibility is four-fold. First, we may consider its duty as a guide to the factory organization which is kept on its toes by the necessary alertness and care required to meet the exciting standards of the laboratory. Then, there are the formulating laboratories, whose painstaking efforts must be guarded and represented by the product control group on a scientific basis. The control laboratory is also answerable to the organization's sales department, in order to protect and represent the salesman in the factory so that his account may be pleased and that the material work correctly. And last, but perhaps most important, the product control laboratory obligates itself to the customer in striving to meet his criteria and to insure that only an organic finish that is a virtual duplicate of his previous batch is dispatched to him.

Aloof and disinterested, a group whose word should be law and whose aim is to continually do the impossible — produce and approve perfect material all of the time: *your* product control laboratory.

Use of Polyols In Synthetic Resins

By HAROLD ROSE
Director of Wood Finishes
Reliance Varnish Co.,
Louisville, Ky.

UNLIKE many of today's products containing polyols, synthetic resins contain polyols in a combined form rather than in its pure chemical state. These polyalcohols are used to esterify either mono or poly basic organic acids. Before continuing, I would like to explain some of these terms that I will have to use for those who are not acquainted with their meaning.

A polyol is a straight or branch chain organic compound containing two or more hydroxyl groups. These OH groupings characterize an organic alcohol and are the reactive portion of the compound. In other words they do the work and the balance of the molecule goes along just for the ride.

A monobasic acid is an organic acid containing one carboxyl group. This like the hydroxyl group of the polyol is the reactive group and the one that characterizes the organic acid. A polybasic acid contains two or more carboxyls.

An esterfication reaction is simply a reaction between an alcohol and an acid, in which one molecule of water (H_2O) is eliminated and the polyalcohol and polybasic acid are combined.

Presented at the management symposium conducted by the Atlas Powder Company of Wilmington, Delaware at the Blackstone Hotel, Chicago Illinois, May 20, 1953

Probably the first synthetic resin most commonly known was ester gum, a combination of rosin and glycerin. Following on its heels were the later developments of the modified maleic resinates, modified phenolics, and alkyds. Of these resins alkyds have proven to be of most importance and consequently have been produced in greater quantity. For this reason I will confine my discussion to this group.

Since Dr. Kienle began the development of oil modified alkyds some thirty odd years ago, there has been thousands of variations of alkyds, both in composition and in manufacturing procedure. Each producer has his own technique of manufacture and his own trick formulations to obtain the desired end products. But basicly alkyd resins are similar in that they are reaction products of dibasic acids or their anhydrides and polyhydric alcohols and fatty acids or oils.

Each of the above three components can be varied to obtain different results in the final resin, but today we are concerned mainly with polyols.

Common Polyols

The most common polyols used in the manufacture of synthetic resins are ethylene glycol, glycerin, pentaerythritol, mannitol and sorbitol. Ethylene glycol contains two reactive hydroxyl groups both of which are in a primary position and react at essentially the same rate. In this compound only a straight chain polymer can be formed with no cross linking, and if a monobasic fatty acid is introduced then the growth of the chain is terminated.

The next polyalcohol is glycerin with its three reactive groups, two of which are primary and the third is in a secondary position. The reaction rate of this secondary hydroxyl is considerably slower than that of the primary, for this reason glycerin reacts more slowly than ethylene glycol, but here you have the possibility with these three hydroxyls of both cross linking with a dibasic acid and the addition of a monobasic acid without completely stopping the growth of the polymer.

Pentaerythritol has four hydroxyl groupings all of which are in the primary position, which lends itself to a faster reaction with a greater ability to cross link and form a larger polymer. This has its advantages and disadvantages which I will bring out just a little later.

The next two alcohols are somewhat similar, mannitol and sor-

bitol. They both contain the same chemical formulation but differ somewhat in their structure, and are known as isomers. Mannitol and sorbitol both contain six hydroxyl groups, two of which are in the primary position and four in the secondary. From what has been said about glycerin and pentaerythritol it is natural to assume that the reaction rate is slower because of the secondary hydroxyl and that its cross linking ability is considerably greater than pentaerythritol or glycerin because of the greater number of OH group. It does have a slower reaction rate, but its cross linking ability is no greater than that of pentaerythritol because under the conditions necessary for an esterification at least two of the hydroxyl groups combine to eliminate water and form an inner ether, thus leaving four or less hydroxyls for reaction.

Evaluation of Polyols

Glycerin has been the most widely used poly alcohol in synthetic resins in the past and it holds true even today. This is probably due to several reasons: (1) Because of its long use it has a much larger background, and its properties and performance in finished products is well known. (2) It appears naturally in oil, and can be used in the alkyds by an additonal processing known as alcoholysis. This process consists of reacting an oil in the presence of an excess of glycerin and an alkaline catalyst under a fairly high temperature of say from 450° to 500°. In this way the triglyceride or oil is broken down into a monoglyceride or monoester. One of the hydroxyl groups of the glycerin has been replaced with a long chain fatty acid leaving two more of the hydroxyl groups to react with the dibasic acid, and cross link with the other molecules. If this alcoholysis was not performed then one would have only a mixture of oil and an ester of the alcohol and dibasic acid, thus you would have what is probably known by any person who has cooked synthetic as a "monkey or gel." (3) When the price of glycerin is more competitive than it is today, somewhere in the range of 22c to 25c a pound it becomes a little more economical to use since you obtain a higher amount of reactive hydroxyl per pound of glycerin than pentaerythritol or sorbitol. (4) It is also more flexible in that shorter oil length alkyds can be prepared because of its lower reaction rate and its poorer ability to cross length.

Although pentaerythritol, sorbitol, and mannitol had been known for quite some time, they did not get the recognition they deserved till the acute shortage of glycerin at the beginning of World War II. This glycerin shortage made it necessary to find some other type of polyol to replace it. So, much investigation and development work was done on pentaerythritol, sorbitol, and mannitol. Pentaerythritol worked fairly well as a substitute for glycerin, but quite a few obstacles were encountered at first. In trying to perform the alcoholysis, the material charred and turned dark and did not become soluble with the dibasic acid. However, further investigation brought about special techniques and catalysts, and thus it became possible to alcoholize oils with pentaerythritol in a similar manner to glycerin.

After overcoming this difficulty it was then found that there was a limit to the oil lengths in which pentaerythritol could be used. Because of its fast reaction rate and its high cross linking ability it was found that as the shorter oil lengths were approached, the alkyd, because of the cross linking ability and fast reaction rate, became so high in viscosity that it became insoluble in the common solvents used. This difficulty was overcome, however, by using an alcohol of less functionality, such as that of ethylene glycol. This lessened the amount of cross linking and allowed smaller polymers to be built, and thus approached those resins made with glycerin. 85 parts of PE and 15 parts of Ethylene Glycol have proven fairly satisfactory.

In looking at the performance results of the pentaerythritol alkyds, we found that it had many desirable characteristics as compared to resins made from glycerin, it gave a faster air dry at the longer oil lengths and also a harder film. It gave better gloss, better chemical and water resistance. But on the other hand, we found some less desirable properties, such as poor can stability and seeding out on aging. Today, however these objections have been overcome. It is a little more difficult to control color during the manufacture, plus the fact that the cost per unit of hydroxyl is greater than that of glycerin, when glycerin is competitive in price. However, in spite of its bad characteristics, pentaerythritol is here to stay, although it will probably never completely replace glycerin.

This brings us down to the last two, mannitol and sorbitol. In the beginning mannitol showed quite a lot of promise, even during the pre-war period, but its high price, short supply made the investigation work turn to sorbitol. Sorbitol like pentaerythritol was considered very seriously by many for substitution in place of glycerin, but it too had some drawbacks in its original investigations. In order to get complete reaction, it was necessary to go to considerably higher temperatures than that of glycerin and pentaerythritol, that is, up to 500° to 525° Fahrenheit. This caused considerable discoloration and the formation of inner ethers to a greater degree. The formation of these ethers resulted in a lower number of reactive hydroxyl available, thus making the price of the hydroxyl considerably more expensive per pound of sorbitol. But, further work was done by the producers of sorbitol, and many of its difficulties were overcome, so that today we have a very useful product. Sorbitol like pentaerythritol was somewhat limited in its use in alkyd resins in that alkyd resins of that shorter oil lengths could not be prepared by using sorbitol alone.

The results of our examination of sorbitol has shown that when used alone as the esterfying alcohol it did not show any real advantages over PE but when used with other polyols it gave better overall properties than the resin using any individual alcohol. The resins prepared from approximate 50/50 mixtures of sorbitol and glycerin give better performance in salt spray resistance. They have comparable color to those made with glycerin and the dry

(Turn to page 81)

Dr. Louis J. Jordan Awarded Medal Of the Soc. of Chemical Industry

Louis Arnold Jordan, director of the Paint Research Station, Teddington, England, has been awarded the Medal of the Society of Chemical Industry.

He is the 29th recipient of the Medal, awarded not more than once every two years for conspicuous service in the field of applied chemistry.

The founder director of the Paint Research Station when it was incorporated in 1926, Dr. Jordan began his career as a Royal Scholar and entered the Royal College of Science in 1910. He obtained the associateship diploma of the college and a first-class honors B.Sc. degree of London University, and was later awarded the degree of Doctor of Science of London.

During the first World War, Dr. Jordan participated in England's explosives program. In 1918, he became associated with the British government's nitrogen fixation project at Billingham.

Following the war, Dr. Jordan joined the Boots Pure Drug Co. as manager of the chemical division. He later joined the British Xylonite Co. and did important investigations which resulted in the establishment of a synthetic camphor industry in Britain.

Prior to becoming associated with the Paint Research Station, Dr. Jordan spent three years in central India as scientific adviser to the state of Bhopal.

Among the honors Dr. Jordan has received are: appointment as Commander of the Most Excellent Order of the British Empire in 1948, and Chevalier of the Order of the Crown of Italy.

He has served as president of the Oil and Colour Chemists Association and is now a manager of the Royal Institution.

•

Koppers' Chem. Div. Establishes Offices in Pittsburgh & Atlanta

The Chemical Division of Koppers Company, Inc., Pittsburgh, has established a new sales office in that city, and has appointed a manager for the new Southern District sales office in the Healey Building, Atlanta 3, Ga.

Leo J. Diamond, head of the Southern office, will service Texas, Oklahoma, Arkansas, Mississippi, North and South Carolina, Tennessee, Florida, Alabama, Georgia, and Louisiana.

Mr. Diamond was formerly a sales representative for the Division working out of the New England District sales office.

Paul McCurdy of the Truscon Laboratories, a division of the Devoe and Raynolds Company, has been named honor student of the class in Surface Coating Technology at Wayne University in Detroit for the school year 1952-1953. As a reward for his top standing in the course sponsored by the Detroit Paint, Varnish and Lacquer Association, and the Detroit Paint and Varnish Production Club, Mr. McCurdy was presented with a five volume set of "Protective and Decorative Coatings," edited by the late Dr. J. J. Mattiello and donated by the Nuodex Products Co. Shown from left to right: L. C. Collinson, Baker and Collinson, local representative of Nuodex; Mr. McCurdy; C. J. Kaiser, Nuodex Products Co., and D. H. Parker, Harmon Color Sales Department, B. F. Goodrich Chemical Company, who directs the course, Powell Magazine, Inc. has donated a year's subscription to its magazine "Paint and Varnish Production" to the three top men in the class. They are Mr. McCurdy, Dave Shepard of Reo Motors, Incorporated, and Ray Ajluni of Acme Quality Paints, Inc.

Detroit Union Ban on Paint Rollers Illegal, Judge Rules

A Detroit Circuit Court judge ruled recently that a union ban on paint rollers in that city was illegal, stating that the ban constituted an "unlawful labor objective."

Basis for the case was a suit brought by the Detroit Chapter of the Painting and Decorating Contractors of America against the Painters District Council (A.F.L.).

The union maintained that the paint rollers were injurious to the health and safety of its members. Detroit contractors asserted that they were being priced of business by the union ban and that the rollers were a perfectly proper tool.

According to a release from the National Association of Paint Roller Manufacturers, nowhere in the United States under common law has there been a legal precedent clearly defining the right of the employer to use advanced tools and methods where no element of health and safety to the worker was involved.

The decision clearly returns to the employer this right, the release said.

•

Synkoloid Company Appoints Spurgeon as Los Angeles Rep.

The Synkoloid Company, Los Angeles, Calif., has appointed the N.B. Spurgeon Company of Chicago as factory representative for their water paint line.

Glycerine and Resin Tests Among Specifications Approved by ASTM

Sixty-three new specifications and tests were approved by the American Society for Testing Materials at its 1953 Annual Meeting held June 28-July 3, in Atlantic City, N. Y.

The tentatives will be published later in the year in the 1953 Supplement to the Book of ASTM Standards.

Specifications covering the paint, varnish, lacquer, and related products include: High-Gravity Glycerine (D-1257-53T); Test for Nonvolatile Content of Resin Solutions (D 1259-53 T); Test for Calculating Small Color Differences on the Hunter Multipurpose Reflectometer (D 1260-53 T); and Methods of Sampling and Testing High-Gravity Glycerine (D 1258-53 T).

Copies of all new ASTM specifications will be available at a later date from ASTM headquarters, 1916 Race St., Philadelphia 3, Pa. The cost will be 25 cents per copy and slightly higher on standards over 16 pages.

•

Maryland Company Constructs Paint Laboratories Building

Bruning Brothers, Inc., Baltimore, Md., have constructed a new plant which is expected to increase their daily paint production to 5,000 gallons daily.

The new building contains about 20,000 square feet of space and contains research and development laboratories.

Materials Handling Contest To Feature Packaging Exposition

Entry blanks for the 1953 Protective Packaging and Materials Handling Competition have been sent to several thousand prospective competitors in industry, commerce, and transportation by the Society of Industrial Packaging and Materials Handling Engineers.

The competition will be conducted as a feature of the SIPMHE-sponsored Eighth Annual Industrial Packaging and Materials Handling Exposition in Mechanic Hall in Boston, October 20-22.

Any individual in the protective packaging and materials handling field, regardless of whether he is a member of the SIPMHE can enter the competition.

As in past years, two special awards will be given: the Harold Jackson Trophy for the entry incorporating the most satisfactory method of product protection against corrosion in export shipment; and the Irving J. Stoller Award for outstanding achievement in the development of interior packaging.

The Harold Jackson Trophy is given annually by the Wm. McGee & Company, New York, marine underwriters, to stimulate better export packing. The Irving J. Stoller Award is given yearly by Irving J. Stoller, president of the Fibleco-Illinois Corp., and a founder of SIPMHE, for notable developments in interior packing.

The divisions are for corrugated or solid fibre boxes; nailed wood boxes and crates; wirebound boxes and crates; cleated panel boxes; "general" containers, including those made from a combination of materials, and also metal containers, fibre drums, wooden barrels, bundles, sacks, and bales; export packages made of any material or combination of materials; and materials handling.

Entries must be made in the names of individuals. None are accepted in the names of companies or organizations. Cash prizes and other awards are given in each division. The winners will be announced simultaneously with the opening of the Exposition.

Anyone not receiving an invitation to enter the competition can procure information and entry blanks by writing to the SIPMHE's national headquarters at 20 W. Jackson Blvd., Chicago 2, Ill.

Cabot Carbon of Canada Opens First Canadian Oil Furnace Plant

Cabot Carbon of Canada, Ltd. has announced the opening and operation of the first oil furnace carbon plant in Canada.

The three million dollar construction, located in the southern outskirts of Sarnia, Ontario, is expected to produce 25 million pounds of oil furnace carbon blacks annually.

More than 500 prominent Canadian industrialists and financiers, and various government officials attended and toured the plant facilities at the opening day ceremonies held on June 26.

The plant, which occupies an area of about 15 acres near several of Canada's leading oil refineries and chemical manufacturing firms, is equipped with a complete smoke elimination system, utilizing special bag filters employing new synthetic fibers resistant to high temperature and will operate without delivering black or smoke to the atmosphere.

Facilities include a modern laboratory and office building, a shower building, materials storage and service building, large warehouse, and black storage building, which also houses a printing press used for bag marking markings. A concrete loading platform, 520 feet long and 15 feet wide, has a paved dock at one end for truck shipments.

Production methods to be employed at the new plant are based on a process providing for the controlled combustion of preheated oil charge in special reactors, with combustion air supplied under blower pressure. The actual plant arrangement provides for two parallel units of production equipment, each unit comprising reactors, cooling tubes, gas coolers, and complete collection equipment, including bag filters.

Provision has been made for expansion of the new plant as required.

Sales offices for Cabot Carbon of Canada, Ltd., a subsidiary of Godfrey L. Cabot, Inc., are located at Toronto and Montreal. The main sales offices are at 170 Bay Street, Toronto, Ontario.

•

Expect Big Boost in Exterior Paint Sales, Goodyear Reports

At least one member of most American families will be welding his own paint brush come 1960, according to an analysis of the potential market of exterior paints by the sales research department of the Goodyear Tire & Rubber Company, Akron, Ohio.

Some 10 million gallons of exterior masonry paint are expected to be used to cover residential buildings of concrete, masonry stucco and asbestos shingle by the turn of the next decade, the survey shows. This compares with about two million gallons of this type paint consumed in 1952.

Although the Southeast and Western regions will continue to be the most important exterior masonry paint markets, increases in consumption are expected in all other sections of the country.

Key factors contributing to the tremendous boost is the increasing trend towards "do it yourself" coupled with easier methods of paint application, according to the Goodyear survey.

•

1954 Plant Maintenance Show Scheduled Jan. 25-28 in Chicago.

The 1954 Plant Maintenance Show will be held Jan. 25-28, at the International Amphitheatre, Chicago.

It has also been announced that the name will be changed to the Plant Maintenance & Engineering Show.

The Chicago exposition will cover more than 100,000 square feet of exhibit space, about one-third larger than the 1953 show and about six times the size of the first exhibit. Three hundred and ten companies already have been assigned space, and the final total is expected to reach 350.

Concurrently with the show, the Plant Maintenance & Engineering Conference will be held at the Hotel Conrad Hilton.

In 1953, for the fourth successive year, the Conference broke attendance records for technical sessions of this type, with more than 2,100 in attendance.

Advance registration cards may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

•

Rheem Manufacturing Company Purchases Two Fiber Drum Firms

The Rheem Manufacturing Company has purchased Pacific Steelfiber Drums, Inc., and Pacific All-Fiber Drums, Inc. of Alhambra and Berkeley, Calif.

Purchase of the two affiliated fiber drum firms includes patent rights, machinery and processes, but does not include land or buildings. Rheem intends to transfer all activities of the two companies to its own plants, and plans an immediate expansion of manufacturing and merchandising activities in the fiber drum field.

According to R.S. Rheem, president of the Rheem Manufacturing Co., processes and patent rights acquired in the purchase will permit mass production of inexpensive, disposable containers for a variety of industrial and commercial products, such as dry chemicals, foods and oils. The fiber containers will be produced in a wide range of sizes from 1-gallon to 55-gallons, and processes include full-color labeling and decoration.

Alkyd & Latex Paint Forum To Be Held Sept. 15, at N. Y. University

A special surface technology forum on "The Formulations of Alkyd and Latex Flat Wall Paints" will be held on Tuesday, September 15, at 8 p.m. in Room 170 of New York University's Waverly Building, 24 Waverly Place, Washington Square, New York City.

Speakers for the program will be Fred B. Stieg, manager of the Technical Service Laboratories, Titanium Division, National Lead Company, and Dorothy Schroeder, assistant to Mr. Stieg.

The forum was arranged by the surface technology division of N.Y.U.'s Division of General Education. Dr. Myron Color, adjunct professor and consultant in technical studies, is program chairman.

Two papers will be read during the forum. One on alkyd flat wall paints will consider the desirable performance characteristics that have evolved as the result of the competition provided by latex paints. It will identify and discuss the formulating principles necessary to obtain these characteristics and will note the roles played by pigment, vehicle binder, and solvent.

The second paper covers general formulating practices of latex paints and reviews the types of latices, protective colloids, alkyd modifications, and pigments.

Assistant Professor Sidney G. Roth, NYU Division of General Education, 3 Washington Square North, is in charge of registration for the forum.

•

Representatives from 40 Nations To Attend Paint Company Meeting

Chemical metalworking representatives from 40 nations will attend a conference, sponsored by the American Chemical Paint Co., in Ambler, Pa., September 21.

The visitors, representing foreign manufacturers licensed by American Chemical, will study American production methods at several large industrial plants.

Sessions in Ambler will cover corrosion inhibition, including acid cleaning, alkali cleaning processes, development and testing of inhibitors, and painting of metal.

Other sessions will be held in Washington, D.C.

A. C. Geiger, Shellac Chemist, Returns to N. Y. After Illness

Albert C. Geiger, one of the early shellac chemists in the United States re ently returned to Long Island, N. Y., from California where he has spent the past twelve years suffering from arthritis.

He was formerly associated with the Gillespie-Rogers-Pyatt Company and the Mantrose Corporation.

Mr. Geiger gained prominence in the chemical industry some thirty years ago when he was one of the first to combine liquid chlorine and caustic soda solution in a gas absorbtion tower to make a stable bleaching solution. The same process is in use today throughout the industry.

For his many friends who may wish to contact him, Mr. Geiger's address is 129 Wilson Road, Valley Stream, Long Island, N. Y.

•

Reichhold To Move Executive Offices to White Plains, N. Y.

Reichhold Chemicals, Inc., will move their executive departments from the present New York office at Radio City, and financial and technical units from their Detroit plant, to new offices in White Plains, N. Y.

The new offices, located on the second floor of a two-story building at 525 North Broadway, will house units directly supervising Reichhold's 12 domestic and 23 foreign plants.

The move was made in order to combine accounting facilities with the executive offices and to closely coordinate management control of over-all operations, an RCI spokesman said.

Additional plans call for the allocation of space for technical and patent libraries from Detroit, and possibly for the entire Traffic Department. A permanent display will also be set up showing the uses of synthetic resins, of which Reichhold is the world's leading manufacturer.

Reichhold will continue to maintain its offices in the International Building at 630 Fifth Ave., New York, as a sales office.

•

Ziegler & Company Purchases Additional Gilsonite Mines

G. S. Ziegler & Company, New York, N. Y. has purchased a Gilsonite mine at Little Bonanza, Utah, from the American Asphalt Association, and a Gilsonite mine from the Castle Peak Gilsonite Company, Provo, Utah, as well as a pulverizing and packing plant at Provo, Utah.

Ziegler now has about 2 million tons of Gilsonite ore reserves. Gilsonite, a natural asphalt found only in the State of Utah, has been widely used in paints and varnishes, and in numerous other applications.

Dr. A. O. Jaeger

Dr. Alphons O. Jaeger, Former Amer. Cyanamid Consultant, Dies

Dr. Alphons Otto Jaeger, former chemical consultant with the American Cyanamid Company, died July 21. He was 67.

Prior to retiring from American Cyanamid, in 1951, Dr. Jaeger was Chairman of the firm's Development Committee, Director of the General Technical Department, and a member of the Research, New Projects, and Process Development Committees. Following his retirement in 1951, he had been a consultant for the Company.

Dr. Jaeger held hundreds of patents on chemical manufacturing processes which he developed during his 40 year career in the chemical industry. Among his most important developments is a vanadium catalyst for sulfuric acid production, which has become the basis of more than 90 per cent of the world's sulfuric acid producing facilities constructed in the past 25 years.

Other patents cover numerous organic acids, paints, lacquer, varnishes, tall oil, etc.

Born in Bergzabern, Germany, Dr. Jaeger studied chemical engineering at the Institute of Technology, Friedburg, Germany, from 1906 to 1907; received a B.S. degree from the University of Zurich, Switzerland, in 1911, and a Ph.D in chemistry in 1913 from the University of Basel, Switzerland.

Between 1914 to 1923, Dr. Jaeger worked as a chemist for several firms including, National Aniline & Chemical Company, Buffalo, Monsanto Chemical Company and the Selden Company, Bridgeville, Pa. In 1929 he was elected Vice President of Selden when that firm merged with American Cyanamid.

Dr. Jaeger was a member of the American Chemical Society, the American Institute of Chemical Engineers, and the German-American Society for Testing Materials.

Eugene H. Ott

Paint Production Club Fed. To Hold Annual Meeting Oct. 29-31

Paint education, Research and Production will be covered at the 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs to be held October 29-31, at Chalfonte-Haddon Hall in Atlantic City, N. J.

The Program Committee, under the chairmanship of Eugene H. Ott, of the Cleveland Club, has revealed that 16 papers have been scheduled for presentation.

Included among the papers will be the Fifth Mattiello Lecture, to be presented by Dr. A. C. Elm, of the New Jersey Zinc Co. His topic will be *The Effect of Pigments Upon the Mechanical Properties of Paint Films.*

Four roundtable and open forum discussions will also be included in the program. They will cover: New Emulsion Type Paints (other than styrene-butadiene latices), Production Planning and Scheduling, Putty, Glasing, Caulking Compounds, and Roof Coatings, and Gadgets and Gimmicks.

Identity of the keynote speaker will be announced at a later date.

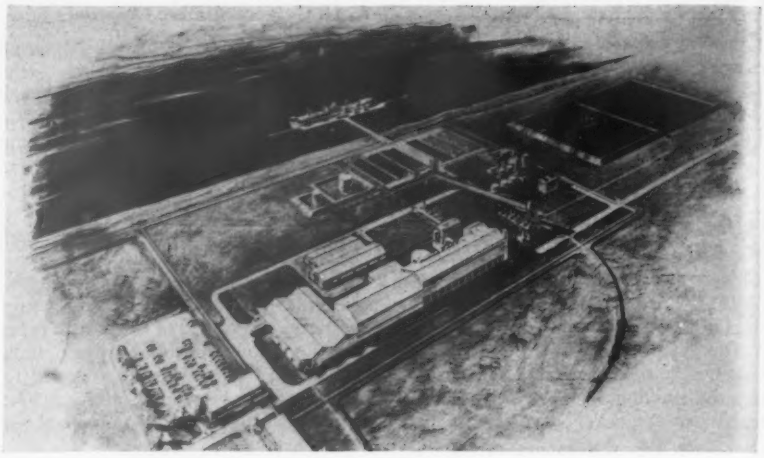
•

Celanese Moves its Application Laboratory to Summit, New Jersey

The Application Laboratory of the Chemical Division of Celanese Corporation of America is being transferred from Newark to Summit, N. J.

According to David D. Hecht, director of the laboratory, the move was designed to broaden the scope of the laboratory activities.

Expansion of facilities will permit intensification of work directed toward the application of recent Celanese development chemicals.



Architect's conception of Calco's proposed tintanium dioxide plant

Amer. Cyanamid's Calco Div. To Construct Titanium Dioxide Plant

A 14 million dollar titanium dioxide plant will be constructed on the outskirts of Savannah, Ga., by the American Cyanamid Company's Calco Division, Bound Brook, N. J.

Construction on the new plant will begin the last quarter of this year and is expected to be completed early in 1955, according to Kenneth C. Towe, American Cyanamid president.

The plant will occupy a 1,600-acre tract of land along two miles of the south shore of the Savannah River.

Organic Coating Courses Scheduled At Polytechnic Inst't. of Brooklyn.

Two courses on Organic Coating Technology will be given at the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., during the 1953-1954 year.

Course 2701, covering the chemistry, manufacture, and applications for oils, resins, varnishes and high ploymers, will be given on Mondays from 6 to 8 p.m.

Course 2711, to be held on Fridays from 6 to 8 p.m., is an advanced course covering the fundamentals of Organic Coating Technology, and new developments in the coating industry.

Both courses begin the week of September 21. Registration should be made the preceding week.

Further information may be obtained from the Dean of Graduate Division, Polytechnic Institute of Brooklyn, 85 Livingston St., Brooklyn 2, N. Y.

CORRECTION

On page 38 of the August issue there appeared an article entitled, "Dow Dealer Educational Program Designed in Proper Use of Latex Paint Proves Successful." There is one point which we wish to clarify—the educational program is carried on through the paint manufacturers and in no instances does a Dow representative contact the dealer direct.

Committee Chairman Named for 31st. FPVPC Meeting in October

Chairman of the Host Committee and Chairmen of the sub-committees have been named for the 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs scheduled Oct. 29-31, at Chalfonte-Haddon Hall in Atlantic City, N.J.

Fred Damitz (New York Production Club) is Chairman of the Host Committee and Chairmen of sub-committees are: Banquet, Al Stover (Philadelphia Club); Dance, John Harner and Don Munson (Philadelphia Club); Entertainment, C. A. Aloia (New York Club); Floor, W. J. Greco and W. E. Santaro, (New York Club); Ladies' Entertainment, Mrs. R. W. Charlton and Mrs. S. R. Mountsier (New York Club); Registration, A. J. Bruning (Baltimore Club).

The Ladies' Entertainment has arranged a program for wives of Federation members while their husbands are occupied at the business sessions.

The Annual Bridge Tournament of the Federation will be held on Thursday evening, October 29. Play will be Team of Four Duplicate and is open to all registrants at the Meeting—both men and women. In order that a team represent a Club, two of the members of the team must be Club members (or wives of members). The Committee will try to find partners for any individual or incomplete teams that may desire to play.

Mr. Paint Maker!

ODORLESS PAINT IS GOOD BUSINESS!

Good for the property owner and tenants because it is not necessary to close up to redecorate. Good for the contractor because it permits him a more flexible working schedule. Good for the paint manufacturer because it offers an opportunity to increase volume and profits!

To meet a growing demand Phillips Petroleum Company has high quality *odorless mineral spirits* available for prompt delivery in tank cars or carload lots. We are prepared to meet your full production requirements in two boiling ranges:

PHILLIPS 66 SOLTROL* 130
Boiling Range (Approx.)

Initial Boiling Point	345°F
End Point	405°F
Kauri Butanol Number	26

PHILLIPS 66 SOLTROL* 170
Boiling Range (Approx.)

Initial Boiling Point	410°F
End Point	450°F
Kauri Butanol Number	24

Soltrol 170 is specifically recommended in paints requiring longer wet edge and slower drying characteristics.

Write or wire today for complete information on these pace-setting odorless mineral spirits: Phillips *66* Soltrol 130 and Phillips *66* Soltrol 170.

FREE TEST SAMPLES

Like to test Phillips 66 Soltrols? We'll gladly send you samples for evaluation. Just tell us how much Soltrol you need to prove to yourself the advantages of *odorless* Soltrols in your products.

ODORLESS MINERAL SPIRITS

Phillips 66

SOLTROL*

*A Trademark

PHILLIPS PETROLEUM COMPANY
SPECIAL PRODUCTS DIVISION
BARTLESVILLE, OKLAHOMA


SERVING INDUSTRY... SERVING AMERICA
You are always close to Continental Can with its 74 plants in the United States, Canada and Cuba, 17 field research laboratories and 66 sales offices.

SALESMEN WITH NINE LIVES

Most containers are meant to have a short life and a useful one. But the pails and drums that Continental makes of *steel* are just too good to throw away. They literally have nine lives.

In their first life they transport heavy products like paint, roofing or petroleum compounds, chemicals or bulk drugs. They go to market bright, tight and beaming sales appeal.

After their contents are gone, they continue working for years in shops, garages and on the farm. Their labels, lithographed right on the metal sides, remain sharp and clear. The man who uses an empty container for the storage of feed, seed, kerosene or what-have-you is constantly reminded of the brand that came to him in that container.

Continental supplies these "salesmen with nine lives" to an impressive list of leading companies. We are a leading producer of two to 12-gallon flaring and straight-sided steel pails and closed-head drums.

Also important is the fact that Continental is one of the few steel container manufacturers that also make tin cans. This means we can offer our customers an experience in manufacturing and lithographing metal containers that's hard to equal.

CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING 100 E. 42nd ST., NEW YORK 17, N. Y.

CONTINENTAL CAN COMPANY OF CANADA LIMITED, MONTREAL

SINCLAIR ODORLESS SOLVENTS RIDE IN "STYLE"...

TO KEEP YOUR PAINTS TRULY ODORLESS

SINCLAIR ODORLESS SOLVENT LIGHT

Distillation Range
IBP . . . 345°F EP . . . 400°F
Kauri-Butanol Value . . . 27

SINCLAIR ODORLESS SOLVENT HEAVY

Distillation Range
IBP . . . 375°F EP . . . 465°F
Kauri-Butanol Value . . . 26
Longer Wet Edge

Sinclair maintains a fleet of special tank cars *exclusively in Odorless Solvent service* – just one of Sinclair's chain of precautions to protect your shipment of Sinclair Odorless Solvents against contamination.

Sinclair's team of truly Odorless Solvents, both Light and Heavy, are synthetically produced from carefully selected hydrocarbons to insure the uniformity, stability and superior quality required by manufacturers of odorless paints.

Light and Heavy available in full and split tank car quantities – prompt shipment to meet your production requirements. For samples, prices and complete information on Sinclair Odorless Solvents, write or call –

SINCLAIR CHEMICALS, INC.

(Subsidiary of Sinclair Oil Corporation)
6 East 45th Street, New York 17, N. Y.

NEWS DIGEST

William J. Greco

Water Dispersed Paint Panel To Feature FPVPC Meeting in Oct.

"Water Dispersed Paint Systems" will be one of the feature panel sessions scheduled for the Annual Meeting of the Federation of Paint and Varnish Production Clubs at Haddon Hall, Atlantic City, N. J., October 29-31.

William J. Greco, of the New York Paint and Varnish Club, has arranged the panel and will serve as chairman. Panel members include: Herbert E. Hillman, Eagle Paint & Varnish Corp., Long Island City, N. Y.; Waller H. Hoback, Calco Chemical Division, Bound Brook, N. J.; Edward C. School, Esco Laboratories, Hasbrouck Heights, N. J.; and N. John Timmons, Rohm & Haas Co., Philadelphia, Pa.

To facilitate discussion, the main topic has been subdivided into the following divisions: Binders, Pigmentation, Manufacture, Latest Resin Dispersions, and Consumer Reaction.

Each panel member will prepare a paper giving an outline of one of the divisions. The papers will be published in the September, 1953 Official Digest.

•

Shell Plant Under Construction To Boost Firm's Glycerine Output

The Shell Chemical Company will start construction on a new plant at Norco, La., whose allyl chloride and epichlorohydrin output is expected to increase the firm's glycerine production by 25 million pounds per year.

In addition, the new plant which is expected to be completed late in 1954, will make available substantial quantities of epichlorohydrin and Epon resins.

The Norco plant is designed to operate in conjunction with the Shell Oil Company refinery in that city.

Frazar & Company Appointed U.S. Agents for Fischer Steel Balls

Frazar and Company, Inc., New York, has been appointed as United States distributors of Fischer steel balls, manufactured by Kugelfischer Georg Schafer & Co., Schweinfurt, Germany.

Fischer balls are used as crushing and grinding balls, among other applications.

N.Y. Vehicle Group to Meet at Chemists' Club

Ben Farber and Oscar Muller have announced that the September meeting of the Vehicle Manufacturer's Group of the New York Paint, Varnish and Lacquer Association will meet on Wednesday, Sept. 16, 6:30 P.M. at the Chemists' Club, 52 E. 41st St., New York City.

The speaker will be Dr. Frank Oswald of the Hercules Powder Co., who will talk to the group on dimethyl-isophthalate in alkyd and polyester resins.

F. H. Amon, Cabot Technical Dir., Returns from Business Trip to Eng.

Fred H. Amon, Technical Director of Godfrey L. Cabot, Inc., Boston, Mass., has just returned from a month's trip to England and Scotland, where he visited various rubber manufacturing firms and held technical discussions with their representatives.

He also met with members of the technical and sales staff of Cabot Carbon Limited, Cabot British subsidiary company at Stanlow, near Liverpool, England.

Mr. Amon discussed recent developments with respect to use of the new oil furnace blacks in natural rubber. In particular, he was concerned with possibilities for increased applications in British industry of Stanlow-produced Cabot oil furnace blacks, and further diversification of plant production.

Summer Paint Courses at N. Dakota Proves Successful

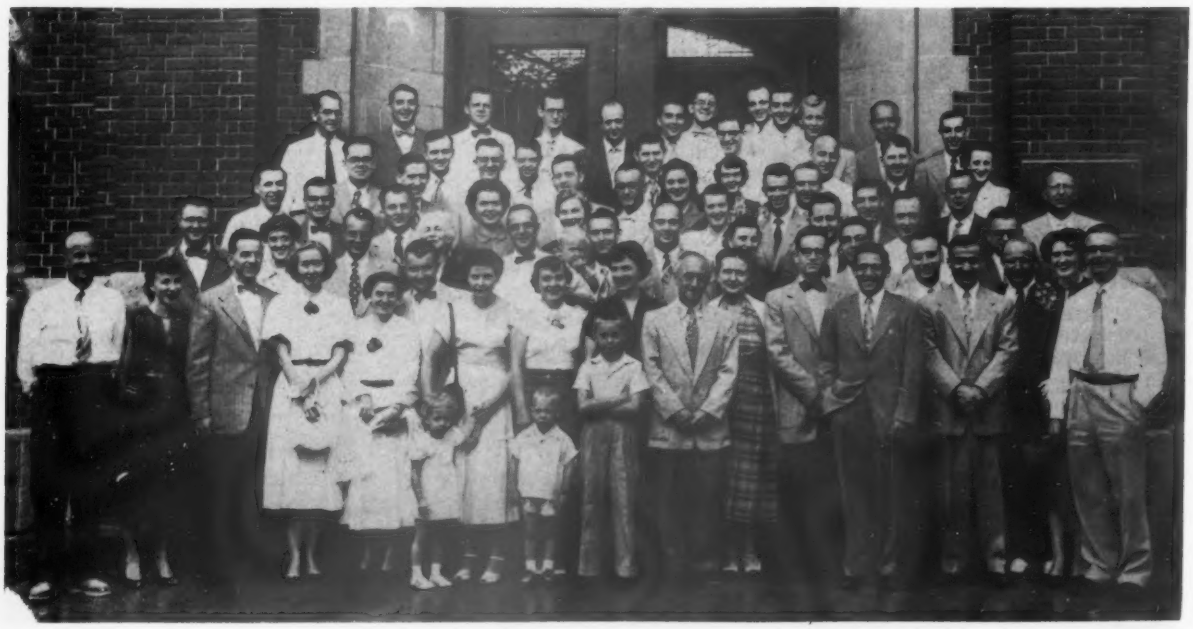
"Best course I ever took"
"We will send two men next year"
"Register me for the advanced course in 1954"
"I do not know whether I understood everything, but I learned a lot"
"You are to be complimented on your activities"
"I cannot understand why you still do not get more students"
"I have enjoyed the course immensely, both the business sessions and the entertainment"

These were some of the remarks that Dr. Wouter Bosch received from the seventy-six students who were enrolled in the Sixth Paint Short Course for Beginners, June 15-26, 1953, and the Third Advanced Paint Refresher Course, July 6-17, 1953, held at North Dakota Agricultural College, Fargo, N. D.

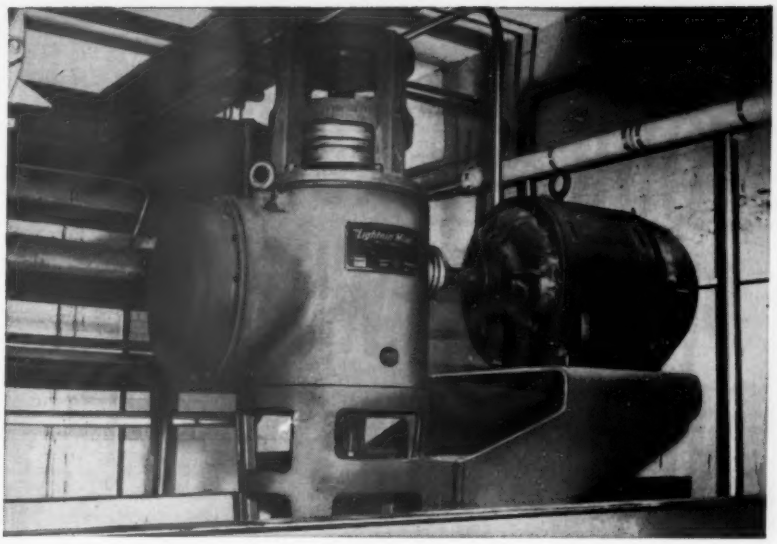
The beginners course is taught by Dr. Bosch and consists of 20 lectures 10 discussion periods, and 10 laboratory' sessions.

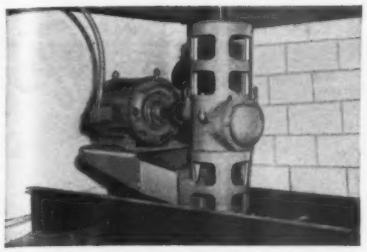
The purpose of the advanced refresher course is to acquaint experienced men with the latest developments in the various phases of paint technology.

Above: Students in Sixth Paint Short Course
Below: Students in the Third Advanced Paint Refresher Course



THIS LIGHTNIN 10-HP MIXER permits thinning large batches of varnish bases within a few minutes after cooking end point is reached. Unit is installed in 4,000-gallon tank at Pratt & Lambert, Inc.





THIS 5-HP UNIT thins alkyd resins at Pratt & Lambert, Inc. in 3,000-gallon batches. Tank and mixer wetted parts are stainless steel to resist corrosion.

What's the secret of HIGH-SPEED THINNING *in profitable varnish production?*

MAINTAINING PIGMENT SUSPENSION in oil stain during filling operation at Pratt & Lambert, Inc. This function is performed with LIGHTNIN air-driven portable mixer, one of thirty models available.

You can thin varnish in big batches safely, with excellent uniformity and no spoilage—if the mixing is right.

Pratt & Lambert, Inc. (Buffalo, N. Y.) performs this critical operation in a 4,000-gallon tank fitted with a LIGHTNIN turbine mixer. Their new thinning process results in substantial cost reductions.

Varnish bases are first processed to an end point in 2,000-gallon quantities in stainless steel kettles, then discharged in a molten state under CO_2 pressure to the thinning tank, which contains a predetermined volume of thinner.

The LIGHTNIN Mixer rapidly disperses the molten base in the thinner, producing a uniform product which is then filtered and either packaged for sale or incorporated in enamels.

Rapid dispersion of the varnish base in the thinning tank is necessary after the end point is reached in the cookers. Mixing must be done quickly to prevent overcooking the latter part of the batch.

This typifies the way LIGHTNIN Mixers help to reduce mixing, tinting and thinning costs while increasing plant productivity. LIGHTNINS are supplied for open and closed tanks, in sizes from ⅛ to 500 HP.

May we show you, without obligation, how a fully-guaranteed LIGHTNIN Mixer installation can help cut *your* production costs? For details, write us today.

Lightnin® Mixers

Get these helpful LIGHTNIN Catalogs

This library of mixing information is yours for the asking. Catalogs contain helpful data on impeller selection; sizing; best type of vessel; valuable installation and operating hints; complete description of LIGHTNIN Mixers.

MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc.

182 Mt. Read Blvd., Rochester 11, N. Y.

In Canada: William & J. G. Greey, Ltd., Toronto 1, Ont.

- ☐ DH-50 Laboratory Mixers
- ☐ B-75 Portable Mixers (electric and air driven)
- ☐ B-102 Top Entering Mixers (turbine and paddle types)
- ☐ B-103 Top Entering Mixers (propeller type)
- ☐ B-104 Side Entering Mixers
- ☐ B-105 Condensed Catalog (complete line)
- ☐ B-107 Mixing Data Sheet

Please send me the catalogs checked at left.

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

NEWS DIGEST

Charles Finegan

Rinshed-Mason Chief Chemist Awarded for Scholastic Work

Charles Finegan, chief chemist at the Anaheim, California plant of the Rinshed-Mason Company, manufacturers of automotive and industrial finishes, recently completed the two year Paint Technology course at Los Angeles City College with the highest scholastic average in his class.

Mr. Finegan was presented the Nuodex Company award, a five volume set of Mattiello's works, "Protective and Decorative Coatings"; plus a year's subscription to *Paint and Varnish Production* magazine in recognition for his fine work.

•

New Barrett Chicago Phthalic Anhydride Plant Now In Operation

The Barrett Division of the Allied Chemical & Dye Corporation, New York, N.Y., has announced that its new 5 million dollar phthalic anhydride plant in Calumet, Ill., is now in operation.

Capacity of the Chicago plant, plus that of a similar installation at Philadelphia, Pa., soon to be completed, will eliminate the possibility of a short supply of phthalic for some years to come, according to T. J. Kinsella, Barrett president.

The uses of phthalic anhydride have been expanding with great rapidity during recent years. Principal uses are in the manufacture of alkyd resin finishes for automobiles and trucks, for military vehicles and other equipment, and for many varieties of household appliances and equipment.

Neville Names H. C. Smith Co. As Its Agent in Western Tenn.

The Neville Company, Pittsburgh, Pa., has appointed Harry C. Smith and Company, Inc., as its representative in the state of Tennessee west of the 87° Meridian and the state of Arkansas.

Smith and Company will have sole rights to sell Neville products in that territory with the exclusion of the rubber and rubber products industries.

•

L. Arnstein Named Chairman of Paint Div. Joint Defense Appeal

Lester Arnstein, executive vice president of the Arnesto Paint Co., has accepted chairmanship of the Paints & Chemicals Division of the 1953 Joint Defense Appeal campaign.

Mr. Arnstein's task will be to rally the Paints & Chemicals Industries behind JDA's effort to raise New York's share of the 5 million dollars needed to support the activities of the American Jewish Committee and the Anti-Defamation League of B'nai B'rith.

A luncheon organizational meeting has been called for Tuesday, September 29, at the Chemists Club, New York, at which time Mr. Arnstein and other industry leaders will map plans for industry-wide participation in the JDA drive.

•

Hercules Names Central Solvents Distributors of their Paraffins

The Hercules Powder Company Cellulose Products Department has appointed the Central Solvents & Chemical Company of Chicago distributors of their Chlorinated paraffins sold under the name "Clorafin."

Central Solvents, located at 2540 W. Flournoy St., Chicago, will serve in the Chicago area.

•

Goodyear Establishes Chem. Div. Sales Office in Portland, Oregon

The Goodyear Tire & Rubber Company has established a new chemical division sales office in Portland, Ore.

Roy Williams, who will head the new office, is responsible for improving service of the paper and paint industries in the Pacific Northwest territory including Washington, Montana and Idaho in addition to Oregon.

Mr. Williams joined Goodyear early this year, subsequently completing an extensive training course at the firm's Akron, Ohio, offices.

He is a member of the Pacific Northwest Paint & Varnish Prod. Club.

Bennett, Inc. Appoints Naftone Agent for their New Fungicides

Bennett Incorporated, Cambridge, Mass., has announced the appointment of Naftone, Inc., New York, N. Y., as sole selling agent for their new line of fungicide-bactericides, marketed under the trade name of "C 8 Q."

According to Dr. H. L. von Goehde, Bennett's Director of Research, "C 8 Q" has established its value in latex emulsion paints, textile sizes and emulsions, adhesives, wax emulsions, leather finishes, paper sizes and coatings and agricultural sprays, not only as a preservative but also in preventing the growth of mildew on the surface of the dried material.

Glidden's Texas Paint Sales Center Moves to New Locations

The Glidden Company has moved its Southeastern Texas paint distribution center in Houston from 700 Travis St., to 2300 Main St.

Home of Glidden's distribution center for more than 30 years, the Travis Street location is being razed to permit erection of a new office building.

The new Houston location will have self-selling floor counters, shelving and decorations and will employ newly-developed color merchandisers for the firm's line of latex-base paints.

Warehouse facilities at the new center are completely palpetized, and all stock is handled by power lift trucks

AUTOMATIC FILTER PRESS PUMP

saves time, labor and power costs, says manufacturer

Problem

In the use of filter-presses for clarifying varnish and vehicles, it has been standard practice to use constant capacity pumping units to deliver the unfiltered varnish up to and through the filter press.

The usual procedure employed in filtering operations in the varnish field consists of:

(1) filter-aid is introduced into the filter press supply tank, and this mixture of varnish and filter-aid is first circulated through the filter press and back to the supply tank until the filter frames are adequately coated,

(2) the varnish to be clarified is then pumped through the press and from there distributed to the storage or settling tanks.

As the filter-press removes foreign matter and impurities from the varnish being filtered, the frames gradually, *but in always increasing amounts*, become clogged. If the initial amount of varnish in gallons per minute handled by the pump was continuously passed through the filter-press as it slowly clogs, the press would become overloaded resulting in possible breakage of the filter-press frames and/or improper filtration of the varnish itself.

In order to prevent the occurrence of these conditions, the customary procedure was to manually by-pass varied amounts of the varnish as it is being pumped from the supply tank, back to the supply tank prior to its entering the filter press. The press operator by experience, had to properly ascertain the varying amounts he should let pass through the press and the quantity he should return, *unfiltered*, to the supply tank. Eventually, if the batches to be filtered were of great enough gallonage, the pressure of even a small amount of varnish being pumped through the press would be so great indicating that the press was fully loaded with filtered-out impurities. When this occurs, it becomes necessary for the operator to shut the pump down, dismantle and clean the press, and then resume the filtering cycle.

The above method in varnish filter-press service is costly from two standpoints:

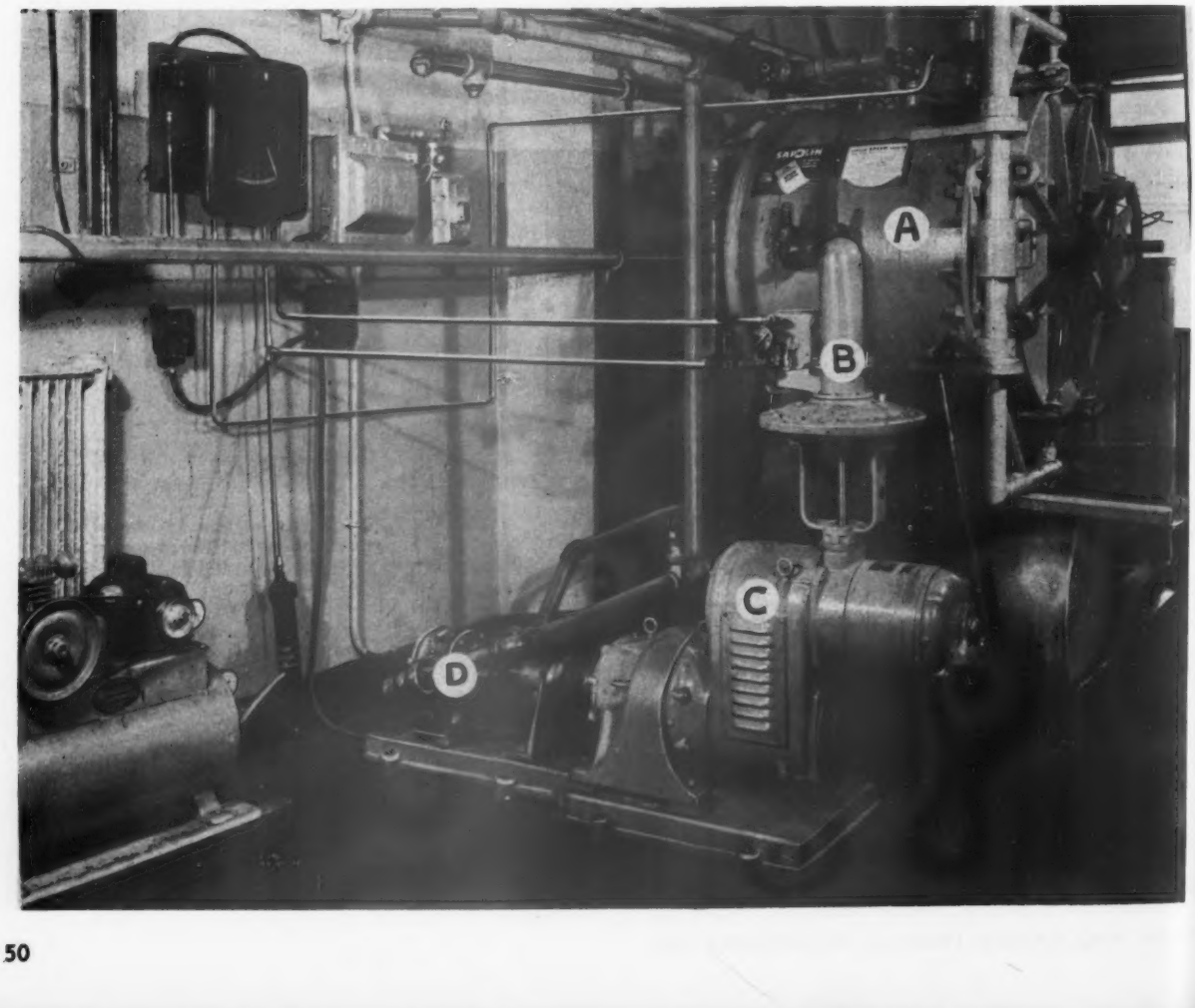
(1) in man hours to maintain a watch at the filter press even if all the varnish was pumped only once directly into the filter press,

(2) in consumption of power, since it is necessary to manually cut down the pump capacity so that the varnish to be filtered in its aggregate quantity has to be recirculated two or more times before it is eventually filtered.

Solution

Foster Pump Works, Inc. designed and constructed a rotary unit, known as the Automatic Filter Press Pump,

Filtering varnishes with automatic filter press pump: A - Filter Press, B - Pressure Regulator, C - Vari-Drive Gearmotor, D - Foster Rotary Pump. Black panel in upper left corner is Pressure Control.



which in exhaustive factory tests and field tests (through actual operation in the varnish plant of Sapolin Paints Inc., Brooklyn, N. Y.) has demonstrated the following features:

(1) automatically, the pump "watches" the pressure build up in the press as it "loads up",

(2) automatically varies the capacity of the varnish being pumped to the exact maximum amount that the press can handle,

(3) automatically and gradually cuts down the capacity of the varnish being pumped as the filter-press becomes more and more clogged, and

(4) finally when the filter-press just cannot filter any more varnish, the pump automatically stops.

Results

(1) After the start of the filtering, human attendance in this particular operation of varnish making is not required with this automatic unit.

(2) It insures but one passage of all of the varnish through the pump prior to its filtration; thus it is not necessary to pump (in actual capacity) two-thousand or more gallons of varnish in order to filter one-thousand gallons, which means a financial saving in power cost alone.

For complete details on the Automatic Filter Press Pump, contact the Foster Pump Works, Inc., 50 Washington Street, Brooklyn 1, New York.

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MIT-SIPMHE Short Course for Engineers Scheduled in October

The Massachusetts Institute of Technology and the Society of Industrial Packaging and Materials Handling Engineers will cooperate in presenting a technical short course designed for the interest of junior and senior engineers scheduled the week of October 19, at Mechanics Hall, Boston.

The education program attracted more than 800 registrants when it was held last October in Chicago under the co-sponsorship of the University of Illinois. This year it is being conducted simultaneously with the Annual Industrial Packaging and Materials Handling Exposition and the National Protective Packaging and Materials Handling Competition.

Sessions on elementary problems of protective packaging and materials handling will be presented concurrently with sessions on advanced and more technical topics.

The curricula will be designed so that the elementary and advanced segments of the course will join together in the closing sessions.

Fred'k A. Stresen-Reuter, Inc. Starts Public Relations Program

Fred'k A. Stresen-Reuter, Inc., suppliers of raw materials to the protective coating industry, have initiated a public relations program to inform paint makers and purchasing agents of Stresen-Reuter product developments.

As the first step in the Stresen-Reuter program, a four page bi-monthly ESSAR (company brand name) Newsletter will be released in mid-August and mailed to paint men and purchasing agents. This "in use" information about ESSAR products will supplement trade paper advertising and other direct mail materials.

St. Maurice Makes First Shipment Of Canadian-Made Pentaerythritol

The first commercial shipment of Canadian-made pentaerythritol in tonnage quantities was made recently from the Varennes, Quebec plant of St. Maurice Chemicals, Ltd., jointly owned by Heyden Chemical Corporation and Shawinigan Chemicals, Ltd., subsidiary of Shawinigan Water and Power Company.

The new St. Maurice plant has a capacity of 30 million pounds of formaldehyde and 3 million pounds of pentaerythritol. Pentaerythritol is the base for weather resistant, fast-drying paints, varnishes, lacquers, and other surface coatings.

With SIGHT-O-MATIC*

the eye is quicker than the hand --and much more accurate!

Four of these gauges, one at each end of the slow and fast rolls, make it easy to set roll pressures accurately.

This gauge shows pressures applied to the take-off knife. It is part of the pneumatic discharge control that assures optimum pressure for efficient take-off.

Sight-O-Matic Control, as incorporated in the Lehmann Model 631-V Three Roll Paint Mill, governs roll pressures through four gauges, one at each end of the slow and fast rolls. These gauges, connected to the mechanical adjustment system through pressure units which actuate the movement of the dial needles, show the operator instantly the effects of adjusting the hand wheel at that end of the roll. Independent adjustment of the slow and fast rolls permits a differential in pressure between the feed roll setting and the take-off roll setting

The gauges enable him to equalize the pressure and maintain uniformity of grind along the entire face of the roll. Roll adjustments can be made quickly and accurately without the liability to human error so common with the slower "trial and error" methods of adjusting roll pressures that put such a high premium on the skill of the operator.

Sight-O-Matic Control, taken together with pneumatic discharge control, drive tension adjustment, dial indicating thermometers on water inlet manifold and at each of the roll water outlets, extra deep hopper and other roller mill refinements, contributes to a substantial increase in paint mill capacity.

Send for further information.

*Reg. U. S. Pat. Office

LEHMANN®

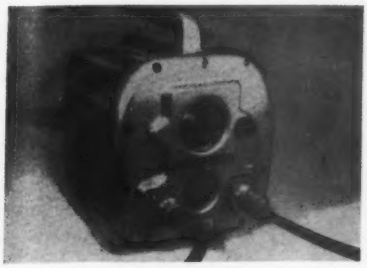
J. M. LEHMANN COMPANY, Inc.

MAIN OFFICE AND FACTORY: 558 NEW YORK AVE., LYNDHURST, N. J.

NEW MATERIALS & EQUIPMENT

A MONTHLY MARKET SURVEY

This section is intended to keep our readers informed of new and improved products. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.



HEWSON

STATIC ALARM SYSTEM

For Hazardous Areas

"Staticator", master alarm system provides complete protection against static in hazardous areas. The warning system operates 24 hours a day with a central alarm panel located in the supervisor's office, as well as a buzzer warning in each hazardous area. Whenever a warning from any area is received, the cause is quickly pinpointed with a portable unit used with a very sensitive static probe. For complete details on this unit, write to The John Hewson Co., 106 Water St., New York 5, N. Y.

DRUM WARMER

Automatic Type

Drum warmer is a portable, hinged electric oven that fits closely around a standard steel drum. Constructed with a 2" thick Fiberglas insulation all-around. Made in two sizes—for 55 and 30 gallon drums. Supplied for 208, 230, and 460 volt single or 3 phase power supply. Choice of 2 thermostat ranges: 100 to 450 deg. F. and 60 to 250 deg. F. Used when drum contents is viscous at room temperatures, but can be made to flow at higher temperatures. Harold L. Palmer Co., 2980 W. Davison St., Detroit 6, Mich.

TEST CHAMBERS

All-Purpose

Line of multi-range, all purpose test chambers is capable of producing low temperatures to −130 deg. F., high temperatures to 200 deg. F. and a standard humidity cycle of 20% to 95% from +35 deg. F. to +185 Deg. F. Made in five sizes with test space capacity from 4 to 36 cubic feet. According to the manufacturer, the new units incorporate many unique features designed to provide faster, easier, and more accurate testing. Murphy & Miller, Inc., 1326 S. Michigan Ave., Chicago, Ill.

MURPHY & MILLER

EPOXY-RESIN COMBINATIONS

Adaptable for Coatings

Compounds varying from elastomers to hard resins, are prepared by co-curing Thiokol liquid polymers with a liquid epoxy resins. Processing is described as simple mechanical mixing at room temperature. Physical characteristics contributed by Thiokol to these compounds have been determined by laboratory tests and in several cases, use in service. These characteristics include permanent flexibility, impact resistance, low shrinkage, good wetting properties and low temperature performance. For complete details on this development contact Thiokol Chemical Corp., Dept. E, Trenton 7, N. J.

ANTI-SKINNING AGENT

Does Not Interfere with Drying

Nilskin is said to be so volatile that it evaporates from the film along with the thinner, and does not interfere with the drying action. Has no unpleasant odor itself and does not develop no unpleasant odor during storage, does not stain whites, and will not cause tints and pure colors to go off-shade in the can; causes no color change during baking; no gelation with its application. Naftone, Inc., 515 Madison Ave., New York 22, N. Y.

DOLLY MIXER

For Small Batches

Unit moves on two fixed and one swivel castor and is positioned by a strong truck lock. Recommended for small batches; used for color mixing; suitable for mixing in congested areas. This mixer is balanced so that it can be titled in or out of the mix. Also, available in a quick-lock coupling from motor to shaft so that one drive-head can be used for any number of shaft and propeller assemblies. For complete details on this unit write to Chemineer, Inc., 511 W. Second St., Dayton, Ohio.

CHEMINEER

NEW MATERIALS — EQUIPMENT

FISHER

POWER SUPPLY
For DU Spectrophotometer

The Beckman DU Spectrophotometer can now be powered from the outside by moving the six 7½-volt dry cells into a special compartment built into the power supply. An extra feature is a seventh battery furnished with this power supply. According to the manufacturer, it takes part of the load formerly carried by the No. 2 dry cell, lengthens the service life of the DU power system. Line voltage (115-volt 60-cycle AC) is fed through a constant voltage transformer, stepped down, rectified and fed to the storage battery which smoothes out any fluctuations. For further details write to: Fisher Scientific, 717 Forbes St., Pittsburgh 19, Pa.

SILICONE RESIN
Heat, Weathering Resistance

SR-17, silicone varnish is said to possess a combination of heat resistance, low temperature and high bonding strength. Insulation applications include coating glass cloth for Navy power cable and Class H insulation, providing a tough bond for flexible mica tapes and coil wrappers, treating glass sleeving, and impregnating asbestos for layer insulation.

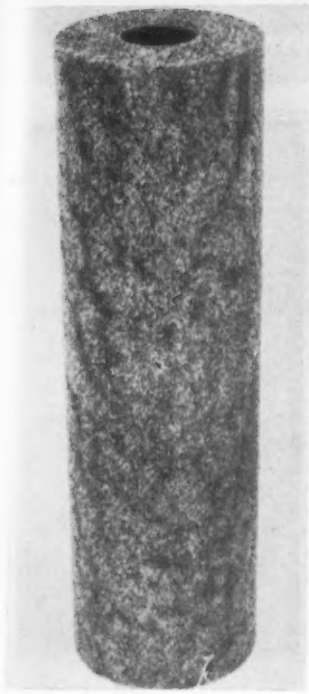
According to the manufacturer, SR-17 may be used as a resin base for protective and decorative paints requiring heat and weathering resistance. It is compatible with many other types of silicone resins in use today.. General Electric Co., Chemical Dept., Pittsfield, Mass.

SAYBOLT VISCOSIMETER
Redesigned Unit

New Saybolt viscosimeter is equipped with redesigned thermostated bath encasing the Saybolt tubes. Features of the bath include stainless steel construction, leakproofness, a drain-overflow holding the level of bath liquid to the prescribed height on the Saybolt tubes, and uniform circulation around the viscosimeter tubes. It is claimed that this new viscosimeter can be used with as many as four standard ASTM-type Saybolt tubes and is supplied without tubes to permit the user to install tubes he has or select Universal or Furol tubes in any combination he may need.

The four tubes are grouped in the front of the bath. Standard 60-ml receiving flasks with flared necks, made to ASTM design, catch the oil as it drains from each tube to be timed for Saybolt units. Position of the flask is critical (to reduce turbulence, eliminate foaming, etc.) According to the manufacturer, the aluminum template assures proper position. An illuminated frosted-glass panel behind the receiving flasks assures the meniscus can be seen clearly. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

NEW MATERIALS — EQUIPMENT



CUNO

CARTRIDGE FILTER
Paper Lined

Paper lined "Micro-Klean" cartridge has been tested and approved by manufacturers of paint for filtering extra fine enamels and lacquers, according to the manufacturer. Paper of special fibre construction and dimension is bonded to the company's standard micron cartridge. This paper is said to eliminate the largest possible number of particles under 10 microns thus producing finer and more consistent enamels and lacquers. Uses recommended by the manufacturer include filtration of #5, #6, #7, and #8 enamels where a fine vehicle break is involved and the nature of the gel structure is slippery and slimy, and the filtering of lacquers for the automotive industry where the pigment content is low. Cuno Engineering Corp., Meriden, Conn.

PROGRAM CONTROLLERS
For Time and Temperature

Program controllers regulate temperature according to a predetermined schedule of changing values

NEW MATERIALS — EQUIPMENT

It is reported that any desired program, such as a heating, soaking, and cooling cycle can be accurately maintained. The desired schedule of temperatures is prescribed by the contour of a transparent plastic cam. The same controller can be used to maintain any number of different temperature programs, since cams of different contour are easily interchanged. The instruments employ an electronic control system with proportional input action optionally available. The Bristol Co., Waterbury 20, Conn.

FUMARIC ACID

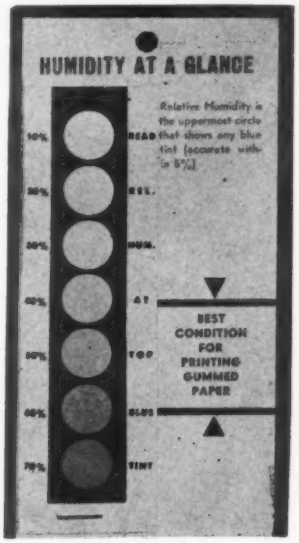
Commercial Quantities

Fumaric acid, crystalline and free-flowing, is employed in the production of resins for surface coatings and printing inks. Other uses are as a modifier of phthalic-type alkyds, in the upgrading of drying oils, and the formation of adducts with rosin and terpenes. Organic Chemical Div., Monsanto Chemical Co., St. Louis 4, Mo.

O-PHENYLPHENOL

Low Toxicity

O-phenylphenol in the form of white flakes is essentailly colorless and odorless, according to the manufacturer. Used as preservative for adhesives, paper coatings, textile sizing, and in applications where a product of low toxicity and low health hazards are required. The Dowicide Sales Div., The Dow Chemical Co., Midland, Mich.



ANDREW

HUMIDITY INDICATOR

Uses Color Changes

For a quick method of determing atmosphere humidity, humidity indicating cards know as "Humid graphs" are used. The basic card contains seven indicator spots whose color changes from blue to lavender to pink under atmospheric humidity changes. The card is scaled to show relative humidity by reference to the color change spots.

Applications are wide-spread in process plant and laboratory work, where quick and simple indications of humidity are essential. Andrew Technical Service, 3805 North Clark St., Chicago, Ill.

PALLET ROLLERS

Speed Material Flow

Ace "Swivel King" pallet rollers is reported to permit effortless movement of palletized loads in any direction and to any location needed. They are designed to provide 360 degree directional movement. Speed up material flow and product movement. Light in weight. Frank L. Robinson Co., Latham Square Bldg., Oakland, Calif.

Personnel Changes

R. J. Prentiss

A. C. Horn

NUODEX PRODUCTS

A. C. Horn and **Richard J. Prentiss** have been elected to the board of directors. Mr. Horn, former president of the A.C. Horn Company and vice-president of the Sun Chemical Corporation, is currently a member of the advisory committee of the Manufacturers Trust Company. Mr. Prentiss is the founder and former president of the Prentiss Drug and Chemical Company of New York and Chicago.

INTERCHEMICAL

Stewart Hoagland has been appointed manager of corporate advertising and promotion for Interchemical Corporation, manufacturers of industrial finishes, textile colorants, printing inks, and other chemical coatings. Mr. Hoagland has been associated with Interchemical in an advertising and editorial capacity since 1938, when he became editor of the R-B-H Dispersions, a divisional publication. He is a graduate of Dartmouth College.

Stewart Hoagland

WAGENMAN PAINT

Ray A. Benning has been added to the firm's technical staff. Mr. Benning, who has had more than 35 years of experience in paint manufacturing, will be in charge of technical development of "shelf-goods" and architectural paint products. For the past five years, he was superintendent and technical director of the Sundure Paint Corporation at Syracuse, N. Y.

BROWN-ALLEN

Arnold S. Martenson has been appointed sales manager of the Staten Island, New York, Oil Division.

DIAMOND ALKALI

Charles P. Egolf, III, has been appointed the firm's sales and service representative for the state of Florida, succeeding Frank V. Allen. Mr. Egolf will handle Diamond's complete line of chemicals. For the past year Mr. Egolf has been employed as a research chemist by the Food Machinery & Chemical Corporation at Lakeland, Florida.

DEWEY & ALMY

John G. Broughton, Jr., has been promoted to head midwest sales for the Organic Chemicals Division. He will handle sales of all "Darex" organic chemicals to the paint, paper, textile, rubber and chemical industries in the midwest. Mr. Broughton will make his headquarter at Dewey & Almy Chemical Company's Chicago plant.

CANCO

F. Joujon-Roche has been appointed to the newly created post of manager of manufacture of American Can Company's closing machine department. He will be located in the firm's New York headquarters. Mr. Joujon-Roche joined the firm in 1932.

W. D. Grimmer, assistant manager of the Pacific Division closing machine department, will succeed Mr. Joujon-Roche. He joined Canco's research department in 1922.

DIXIE PAINT

Warren C. Mitchell has been appointed sales manager. For the past two years, Mr. Mitchell has been trade sales manager for Thresher Paint & Varnish Company. Prior to that, he was with the Sherwin Williams Company.

DU PONT

Dr. Paul L. Salzberg has been named director of the Chemical Department, succeeding Dr. Cole Coolidge who died recently. Dr. Salzberg has been associated with Du Pont research since 1928 and has been assistant director of the Chemical Department for two years. He is a member of the American Chemical Society and the American Association for the Advancement of Science.

Dr. Merlin M. Brubaker has been appointed assistant director of Du Pont's Chemical Department, succeeding Dr. Salzberg who was named director. Mr. Brubaker joined the firm 28 years ago. For the past six years, he has been director of research for the Chemical Department and director of Du Pont Experimental Station services.

SHERWIN-WILLIAMS

William W. Gram, how joined the firm in 1936, has been appointed general superintendent of the Newark paint and varnish plant. Most recently he was superintendent of paint production at the firm's Chicago plant.

Aaron Barkman succeeds Mr. Gram at Chicago. He joined the company in 1935 as a chemical engineer. In 1949, Mr. Barkman organized and directed both the industrial engineering department at Chicago and the dispersion laboratory.

SPENCER KELLOGG

Norris L. Farrington has been appointed sales manager of the Industrial Soybean and Castor Oils Department. He joined the firm in 1950 in the Edible Oils section of the Soybean Coconut and Castor Oils Department. Mr. Farrington was later transferred to the Industrial Soybean and Castor Oil section. In 1951 he was recalled to active duty as a Major with the U. S. Air Force. After 17 months of service he returned to the firm this year. Mr. Farrington will be assisted in his new duties by John L. Cowan.

N. L. Farrington

T. P. True

R. F. Loges

BINNEY & SMITH

Thomas Perry True has been added to the general sales staff. He will cover northern New Jersey from the New York offices and will handle all of the firm's lines for the rubber, paint, ink and related industries.

Richard F. Loges has also been named to the general sales staff. He will be attached to the Akron office and will handle Binney & Smith products used in the rubber, paint and ink fields. Mr. Loges was formerly associated with Sherwin Williams in a sales capacity.

DEVOE & RAYNOLDS

Charles B. Moore has been named manager of the newly created Industrial Maintenance Division, with headquarters in Louisville, Ky. He has been with the firm 33 years and prior to his new appointment, held the position of educational director.

A. R. O'Neal, formerly Devoe Eastern District sales manager, has been named Eastern Manager of the new Division.

E. F. O'Callaghan has been appointed Eastern District sales manager. His 12 years experience with Devoe includes service as New York Branch manager, his most recent post.

GIBSON-HOMANS

Elmer J. Fisher for the past seven years chief chemist and production manager, has been appointed director of research and development. Before joining Gibson-Homans, Mr. Fisher had been chief chemist and vice-president in charge of manufacturing at Byerlyte Corporation. In his new post, Mr. Fisher will supervise the company's program of quality control and and will develop new products. He is a member of the National Paint, Varnish and Lacquer Association, the Federation of Paint and Varnish Production Clubs and the American Society for Testing Materials.

E. J. Fisher

HILTON-DAVIS

Gustav Gurska, Jr., has been appointed technical sales representative to the protective coatings industry. He will work directly with Joseph A. Langner, Hilton-Davis' manager of sales to the coatings field, and will represent the firm in Indiana, Kentucky and southern Ohio. His headquarters will be located at the chemical concern's plant in Cincinnati. Prior to joining Hilton-Davis, Mr. Gurska was associated with the Witco Chemical Company, New York, the Shell Oil Company and C. J. Osborn Co.

Gustav Gurska

GENERAL MILLS

Dr. Malcolm M. Renfrew has been named director of Chemical Research and Development. He was formerly director of Chemical Research. Dr. Renfrew now has overall administrative responsibility for the Chemical Research, Chemical Engineering and Chemical Market Development Departments. He came to General Mills in 1949 from Du Pont.

Dr. Harold Wittcoff, formerly head of the product development section, is now head of the Chemical Research Department. He joined General Mills in 1943.

Dr. Owen Moe heads the newly created Chemical Market Development Department. He has been with the firm since 1943.

R. H. Anderson

A. H. Cramer

GENERAL PAINT

A. H. Cramer has recently been appointed to the newly created position of production manager. He joined General Paint in 1945 as Chief Chemist in San Francisco. His most recent post was as technical director.

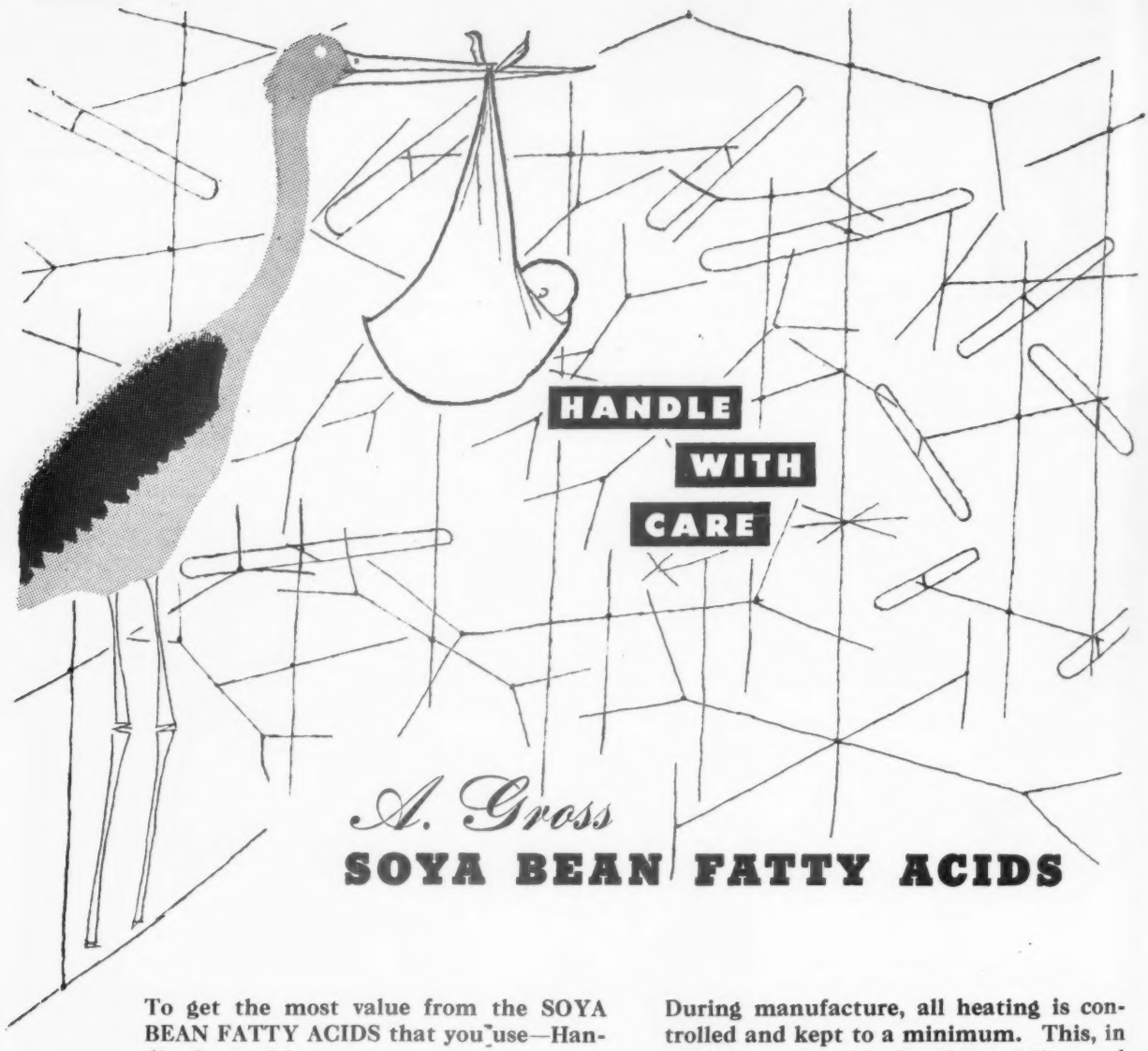
R. H. Andersen, has been named technical director. He was been with the firm since its founding, his most recent post being Chief Chemist at Los Angeles.

Joe King has been promoted to Chief Chemist for the Los Angeles Division, succeeding Mr. Andersen. He has been with General Paint for three years, being previously associated with the Hartley Paint Company of Los Angeles.

UNION CHEMICAL

Delton Ezell has been placed in charge of research and manufacturing. He was formerly with the Duralac Corp., Newark, N. J., for 13 years. Mr. E ell was also associated with Kirker Chemical Co. and John L. Armitage Co.

Joseph F. Mulherin, formerly associated with Flood & Conklin, has joined the firm in charge of plant production.



A. Gross

SOYA BEAN FATTY ACIDS

To get the most value from the SOYA BEAN FATTY ACIDS that you use—Handle them with care.

Into the Fatty Acids that you buy, whether GROCO 28—ALKYD GRADE SOYA BEAN FATTY ACIDS or GROCO 27—REGULAR SOYA BEAN FATTY ACIDS, go years of research and manufacturing experience. A. GROSS & COMPANY manufacture a full line of Fatty Acids in stainless steel equipment using the most modern splitting methods and distillation processes.

During manufacture, all heating is controlled and kept to a minimum. This, in part, is responsible for the stability and uniformity of A. GROSS & COMPANY'S SOYA BEAN FATTY ACIDS.

Our technical sales force can help you with suggestions on how to Handle Fatty Acids with Care in your operations to preserve the light color, bland odor and stability which is built into them.
Send for samples and our booklet "Fatty Acids in Modern Industry."

A. GROSS & Company

A. GROSS & COMPANY

295 MADISON AVENUE, NEW YORK 17, N. Y.

Manufacturers since 1837 • *Factory: Newark, N. J.* • *Distributors in principal cities*

Duomeen T Dioleate—a new Armour chemical—helps stop corrosion and provides anti-skinning, anti-settling in structural paints

Duomeen® T Dioleate is a new chemical which imparts remarkable anti-corrosion properties to structural paint formulations. Tests conducted by exposing scored panels to a southern exposure for six months at Chicago proved that the addition of only ½% Duomeen T Dioleate to structural paint permitted almost no corrosion—and even prevented pitting and under-cutting. At the end of the test, rusting was far advanced on control panels painted with the same formulation *without* the Duomeen.

These tests also show that structural paints containing Duomeen T Dioleate can be applied directly to damp surfaces after brushing, and that they have exceptional salt spray resistance. The Duomeen also imparts remarkable anti-skinning and anti-settling properties.

Samples of Duomeen T Dioleate are available for testing in your formulations. Send the coupon with your letterhead for our free Duomeen Booklet and Product Data Bulletin and "Combat Corrosion" Bulletin.

ARMOUR CHEMICAL DIVISION

© Armour and Company • 1355 West 31st St. • Chicago 9, Ill.

Armour Chemical Division
1355 W. 31st St., Chicago 9, Ill.

Please send me: ☐ Duomeen Booklet ☐ "Combat Corrosion"
☐ Duomeen T Dioleate samples ☐ Product Data Bulletin

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

V

CABOT

Dr. Walter R. Smith and **E. M. Dannenberg** have been appointed Associate Directors of Research. Dr. Smith, who has been Chief Research Chemist of Cabot since 1936, will continue to direct the activities of the Basic Research Section. Mr. Dannenberg will remain head of the Applications Research and Technical Service Section. He has been a member of the Cambridge Research and Development Department since 1945.

Randolph Antonsen, head of the Process Design and Economics Section, has been named as Manager of Research. He joined the Cabot organization in 1945, and was plant manager of a subsidiary company for two years before joining the Research and Development Department as liaison engineer in Boston.

Left to right: E. M. Dannenberg, W. R. Smith, and R. Antonsen

Hertha Bienes, Gregory Berstein and **Thomas H. Goodgame** have joined the staff of the Research and Development Department in Cambridge, Mass. Miss Bienes, Fundamental Research Section, was formerly research assistant at Amherst College, Amherst, Mass. Mr. Goodgame, Applied Research Section, holds a B.S. degree and M. S. degree in Chemical Engineering and recently completed three years of graduate study at Massachusetts Institute of Technology. Mr. Gregory Berstein, senior chemist in the Pigments Application Group, has been a chief chemist in the New England paint manufacturing industry for 11 years.

ALUMI-GARD

Edgar A. Graham, has been appointed vice-president. In his new capacity, Mr. Graham will be in charge of production and sales of the firm's newest product, "Surface Gard," During the past five years, he has been sales manager of Graham and Sons, parent firm of Alumi-Gard.

CELANESE

Edward Swanezy has joined the Chemical Division of Celanese as a sales representative. He has been assigned to the New York office as metropolitan representative.

Harry Bartley previously attached to the New York office, has been assigned to the Mid-Atlantic District.

GREAT LAKES CARBON

Manly B. Brown has been elected Vice President in charge of marketing of the Great Lakes Carbon Corporation. He will make his headquarters at the firm's Chicago office. Mr. Brown was formerly with Republic Steel Corporation.

K. N. Warner

K. K. Boyd

EMERY INDUSTRIES

Dr. **Kenneth N. Warner** has been added to the Research Department staff. He will serve with the New Chemicals Department. Mr. Warners was formerly associated with National Aniline.

K. K. Boyd has been elected to the newly created post of vice president in charge of sales and purchases. He has been with the firm 18 years. Mr. Boyd was most recently director of purchases and sales.

James W. Ritz, formerly head of the Philadelphia Office, has been named Eastern District manager. He will retain his Philadelphia headquarters extending its coverage to include New Jersey, Delaware, Maryland, District of Columbia and portions of Pennsylvania and New York.

Willard A. Colby has been named Southern District manager with offices in Charlotte, N. C. He is in charge of all chemical sales in Virginia, North Carolina, South Carolina, Florida, Tennessee, Georgia, Alabama and Mississippi. Two new men have been assigned to this district: **E. W. Sack,** Greensboro, N. C., formerly a production supervisor with Emery at Cincinnati, and **C. T. Burgess,** Atlanta, Georgia, who replaces **J. P. Clancy,** recently transferred to Boston to assume sales responsibility for a portion of the New England area,

N. F. Reinert has been shifted from Chicago to the Eastern District. He has been replaced by **W. J. Ryan** formerly associated with the Barrett Division of Allied Chemical and Dye Company.

•

Minnesota Mining Co. Purchases Irvington, N. J. Varnish Company

The Minnesota Mining and Manufacturing Company has purchased the Irvington Varnish & Insulator Company of Irvington, N. J.

Herbert P. Buetow, 3M president, said the directors of 3M have approved a 7 million dollar agreement by which Irvington becomes a division of 3M. He added that Irvington stockholders will receive 3M common stock and cash in exchange for their Irvington stock.

Arthur E. Jones, Irvington president, will continue as head of that firm.

Witco Chemical Employee Honored For Twenty-Five Years Service

A gold pin and 100 dollars were presented to Jesse Adams at an honorary dinner celebrating his 25th year of service with the Pioneer Division of the Witco Chemical Company, Lawrenceville, Ill.

The presentation was made by Frank Cullom, superintendent of the plant.

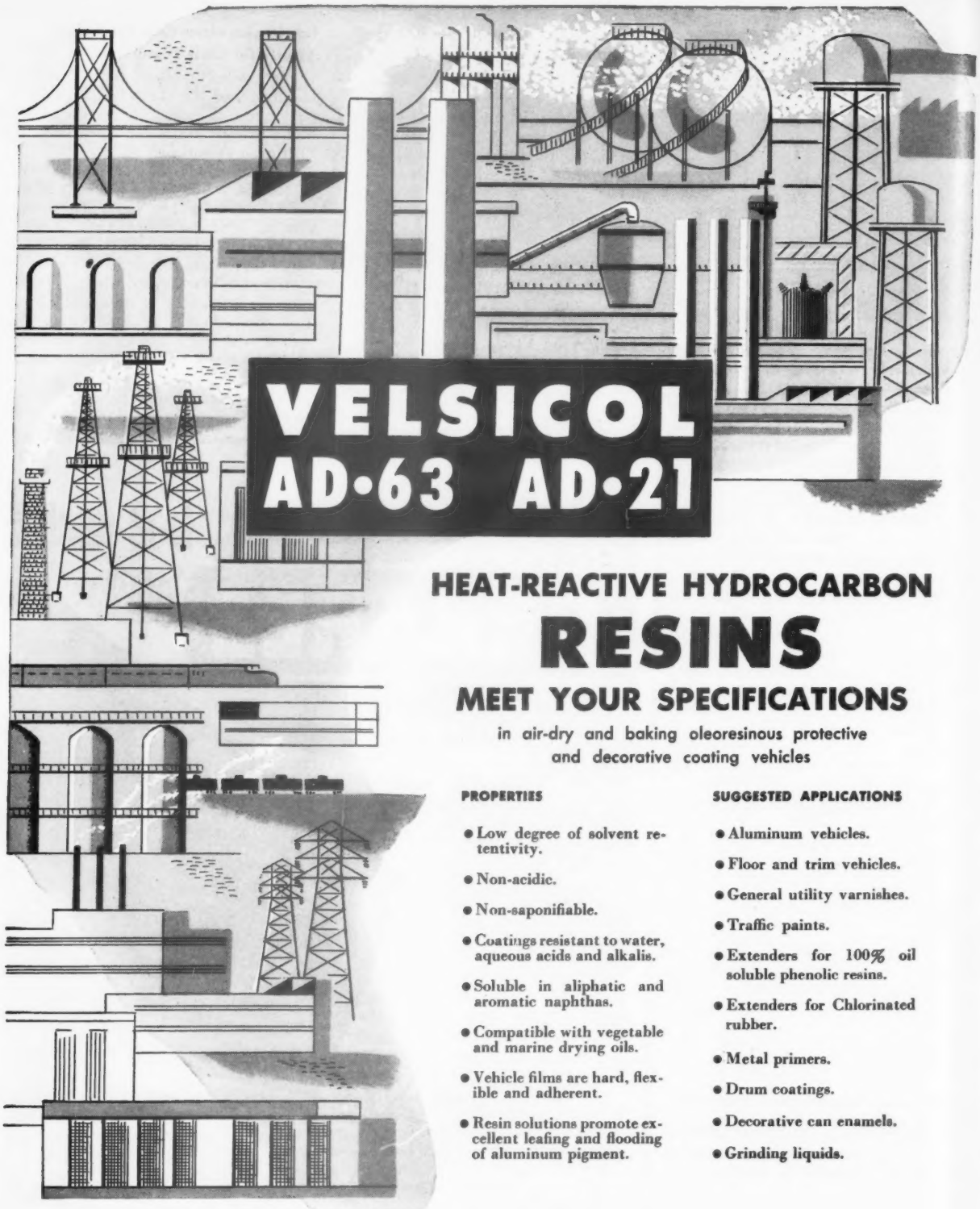
Mr. Adams is the 12th man in the Pioneer organization to reach the 25 year mark. Other men who have served 25 years or more are: Harry Rodgers, Roy Knepper, Robert Adams, Frank Cullom, Raymond Belcher, Aaron Thrall, John Young, Claude Swarens, Floyd Wells, Harrison Wells and Maurice Sager. Roy Sager and Harry Shelton, both deceased, also reached the 25-year mark.

Cowles Appoints Calo Co. Sales Agents for their Dissolvers

The Cowles Company Inc., Chicago, has appointed the Philip E. Calo Company, Inc., Chicago as its exclusive agent in four states for their line of "Ultrafast Dissolvers."

Calo will handle sales of the machine in Illinois, Iowa, Minnesota and Wisconsin. Cowles has only one other distributor at the present time, Warde Associates, Detroit, Michigan, who handle sales in that state.

According to Cowles, though their machine is made up of standards parts, the combination of components is varied with each application, making an unlimited variety of high speed dissolving machinery available to the chemical, paint, plastics, and other industries.



VELSICOL AD-63 AD-21

HEAT-REACTIVE HYDROCARBON RESINS

MEET YOUR SPECIFICATIONS

in air-dry and baking oleoresinous protective and decorative coating vehicles

PROPERTIES

- Low degree of solvent retentivity.
- Non-acidic.
- Non-saponifiable.
- Coatings resistant to water, aqueous acids and alkalis.
- Soluble in aliphatic and aromatic naphthas.
- Compatible with vegetable and marine drying oils.
- Vehicle films are hard, flexible and adherent.
- Resin solutions promote excellent leafing and flooding of aluminum pigment.

SUGGESTED APPLICATIONS

- Aluminum vehicles.
- Floor and trim vehicles.
- General utility varnishes.
- Traffic paints.
- Extenders for 100% oil soluble phenolic resins.
- Extenders for Chlorinated rubber.
- Metal primers.
- Drum coatings.
- Decorative can enamels.
- Grinding liquids.

WRITE FOR TECHNICAL BULLETINS

PETROLEUM DERIVED CHEMICALS "VELSICOL" SERVING BASIC INDUSTRIES

VELSICOL CORPORATION

General Offices and Laboratories
330 E. Grand Ave., Chicago 11, Ill.

Export Division
100 E. 42nd St., New York 17, New York

REPRESENTATIVES IN PRINCIPAL CITIES

Seminar on Coatings to be Held at Illinois Institute

The joint educational committee of the Chicago Paint and Varnish Production Club and the Chicago Paint, Varnish and Lacquer Association have announced plans for a seminar covering modern developments in the protective coatings industry to be held at Illinois Institute of Technology. The first session is scheduled for Wednesday evening, Sept. 23 and the course continues for 16 meetings throughout the fall semester.

An outstanding lineup of speakers has been assembled to present this course which will cover subjects of immediate interest to technical, production, and sales people of the paint and allied industries. Among the subjects to be offered the following should prove to be of particular interest: Latex Paints, Color, High Polymer Coatings, Dispersion Methods, Product Control, and Industrial Finishing.

Registration for this course may be made on Sept. 14, 15 and 17 at the Illinois Institute of Technology. The course is described as Chemical En-Engineering 574 Protective Coatings IV Seminar.

•

Newport Industries, Inc. Opens Regional Office in Houston, Tex.

Newport Industries, Inc., New York, has opened a regional office in the M & M Building, Houston, Texas.

The office will be under the management of John Korose, formerly in charge of the firm's Chicago office.

He will supervise Newport's business in the States of Texas, Mississippi, Arkansas, and Lousiana.

•

Process Industries Appoint Marple Eastern Pa. Agents

Process Industries Engineers, Inc., of Pittsburgh, Pa., has announced the appointment of the Marple Organization, Philadelphia, to represent them in eastern Pennsylvania and the seaboard states below New York.

Process Industries design and manufacture process equipment and construct complete process plants.

PPG's Forbes Division New Lacquer Laboratory

Pittsburgh Plate's Forbes Div. Building New Lab. at Cleveland

The Pittsburgh Plate Glass Company's Forbes Finishes Division at Cleveland, Ohio, is constructing a new laboratory building.

Planned essentially as a lacquer development laboratory, the new building will be a three-story structure adjoining the Division's administration office building at 3800 West 143rd St.

The laboratory will contain 12,000 square feet of space and is so designed that floor area can be doubled for future expansion. Completely air conditioned to provide the humidity control necessary to lacquer development work, the structure, also includes space and equipment for a library conference room and a larger general meeting room.

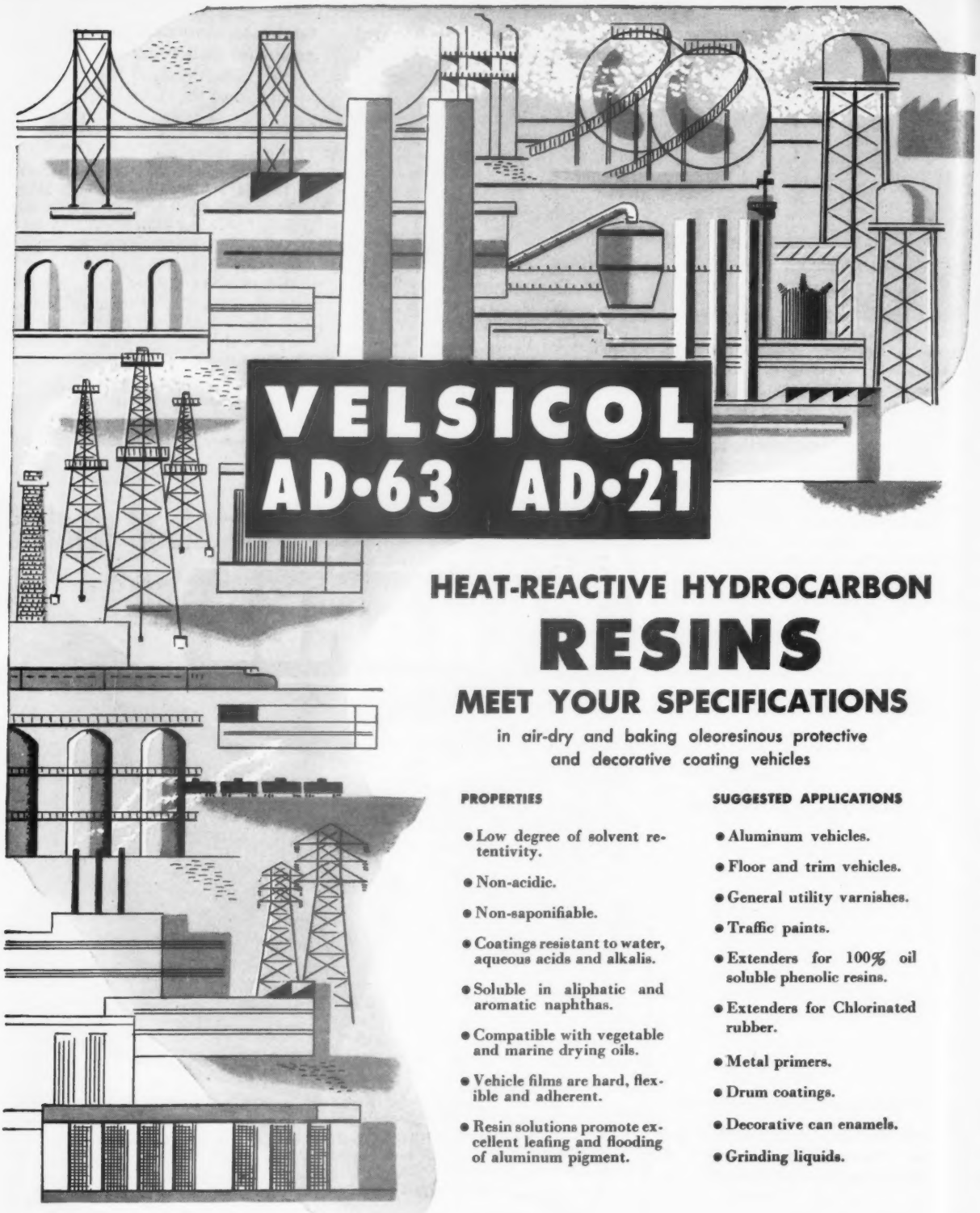
The existing laboratory will continue to function as a Synthetic Resin Enamel Unit.

•

Gelvatex Begins Construction on $500,000 Plant in Anaheim, Calif.

Gelvatex Coatings Corporation has announced that construction has begun on their new $500,000 plant in Anaheim, Calif.

The two-and-one-half-story building, of cement block and transite, will occupy a 13-acre plot and will be completed by January 1, 1954.



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MEET YOUR SPECIFICATIONS

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- Drum coatings.
- Decorative can enamels.
- Grinding liquids.

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PATENTS

Conducted by

Lancaster, Allwine & Rommel

PATENTS AND COPYRIGHTS

424 Bowen Building,
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

Electrical Insulation

U. S. Patent 2,636,085. Jean Louis Gonnard, Villeurbanne, and Joseph Edouard Gustave Lahousse, Lyon, France, assignors to Societe des Usines Chimiques Rhone-Poulenc, Paris, France, a corporation of France.

An insulating and moisture-proofing composition consisting essentially of polyvinyl chloride from 40 to 50% by weight, soft gasworks pitch from 25 to 35% by weight and plasticizer from 15 to 35% by weight.

Wax Composition

U. S. Patent 2,636,004. Robert G. Capell, William P. Ridenour, and John A. Stewart, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware.

An improved wax composition comprising a major amount of a paraffin wax and a minor amount, sufficient to inhibit oxidative deterioration, of a phenylethyl catechol.

Wax Compositions

U. S. Patent 2,628,411. Warren L. Thompson, Robert W. Provine, and John V. Lawson, Tulsa, Okla., assignors to Mid-Continent Petroleum Corporation, Tulsa, Okla., a corporation of Delaware.

A hardened paraffinic wax composition comprising an eutectic mixture of about 67% palmitic acid, about 29% stearic acid, and about 4% oleic acid, the quantity of said eutectic mixture being between about 5% and about 21% of the composition, microcrystalline wax amounting to at least 1% of the composition, and a relatively large volume of paraffin wax hardened by said eutectic and microcrystalline ingredients, the quantity of said paraffin wax being more than 75% of the hardened composition.

Preparation of Polyvinyl Alcohol

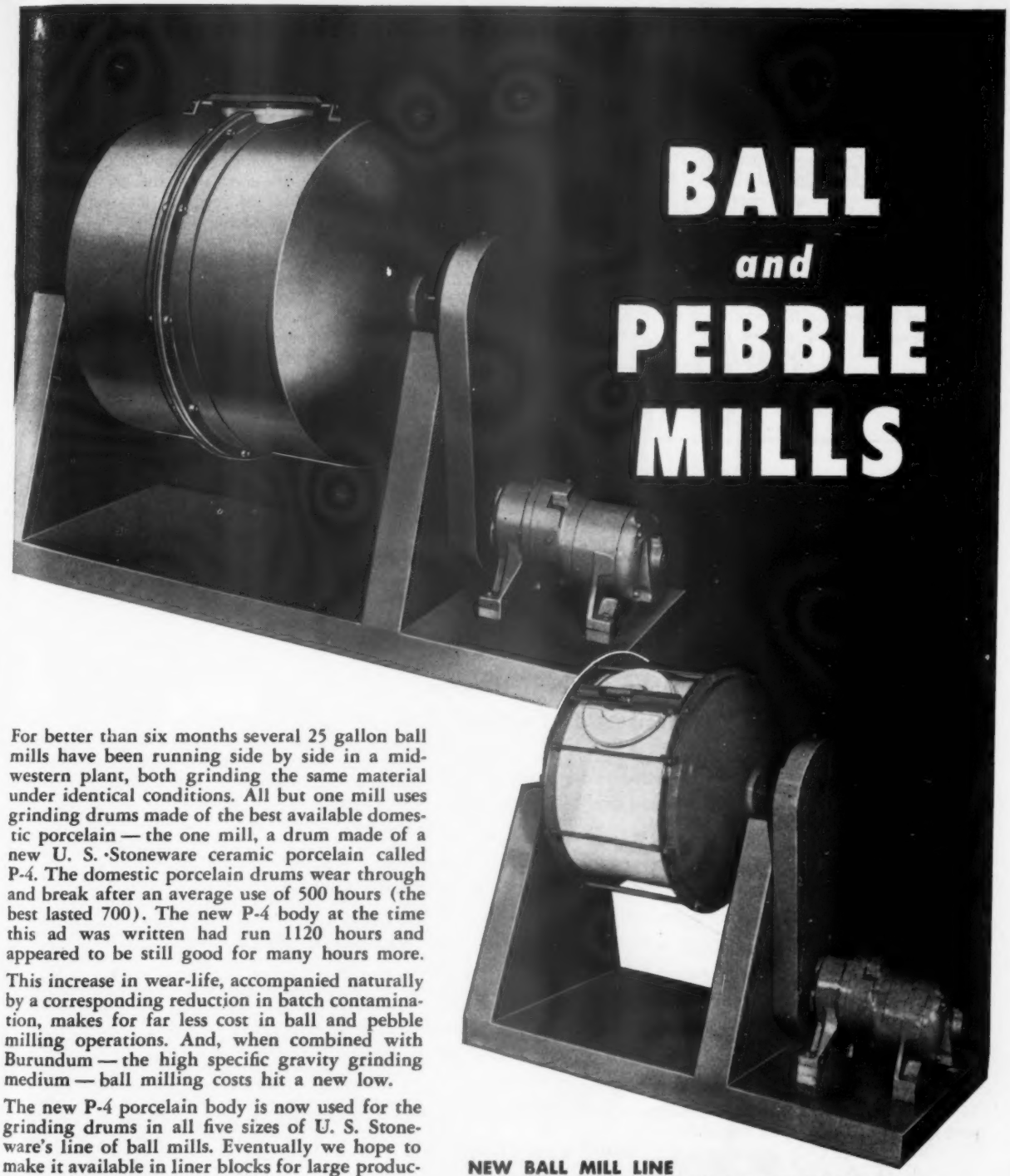
U. S. Patent 2,642,420. William O. Kenyon, George P. Waugh, and Erie W. Taylor, Rochester, N. Y., assignors to Eastman Kodak Company, Rochester, N. Y., a corporation of New Jersey.

The method of preparing a highly pure polyvinyl alcohol which comprises deacetylating polyvinyl acetate while in a methanol solution by the aid of an acid deacetylating catalyst to form a polyvinyl alcohol gel, continuing the deacetylation to produce a gel which is insoluble in water having a temperature not greater than approximately 50°C., and washing the gel with water having a temperature not greater than approximately 50°C. until substantially free from the reaction by-products and residual catalyst.

Curing Glycidyl Polyethers

U. S. Patent 2,642,412. Herbert A. Newey, Lafayette, and Edward C. Shokal, Walnut Creek, Calif., assignors to Shell Development Company, Emeryville, Calif., a corporation of Delaware.

A process for producing a resinous product which comprises commingling an N,N-dialkyl-1,3-propanediamine wherein the alkyl groups contain 1 to 2 carbon atoms with glycidyl polyether of a member of the group consisting of a polyhydric phenol and a polyhydric alcohol, said polyether having a 1,2-epoxy equivalency greater than 1.0, amount of 0.05 to 1 mol of the amine per epoxide equivalent weight of the polyether, and curing the mixture at about 20°C. to 250°C. to a hard resinous product.



For better than six months several 25 gallon ball mills have been running side by side in a mid-western plant, both grinding the same material under identical conditions. All but one mill uses grinding drums made of the best available domestic porcelain — the one mill, a drum made of a new U. S. Stoneware ceramic porcelain called P-4. The domestic porcelain drums wear through and break after an average use of 500 hours (the best lasted 700). The new P-4 body at the time this ad was written had run 1120 hours and appeared to be still good for many hours more.

This increase in wear-life, accompanied naturally by a corresponding reduction in batch contamination, makes for far less cost in ball and pebble milling operations. And, when combined with Burundum — the high specific gravity grinding medium — ball milling costs hit a new low.

The new P-4 porcelain body is now used for the grinding drums in all five sizes of U. S. Stoneware's line of ball mills. Eventually we hope to make it available in liner blocks for large production mills.

WRITE FOR BULLETIN 270 TODAY

209-D

U. S. STONEWARE
Akron 9, Ohio

NEW BALL MILL LINE FEATURES SIZES FROM 12 TO 117 GALLONS

Figure 564M Ball Mills (Illustrated above) are made in five sizes: 12, 27, 52, 87 and 117 gallon capacities. The grinding drums are all made with U. S. Stoneware's P-4 porcelain body. In the 12, 27 and 52 gallon sizes the grinding drum is of one-piece construction. The 87 gallon and 117 gallon sizes are made in two pieces, ground and lapped to form an air-tight seal, and completely enclosed in a flanged steel casing.

Write for a copy of Bulletin 270 describing this new line of ball mills and other U. S. Stoneware grinding and mixing equipment.

Paraffin Wax With Polyethylene

U. S. Patent 2,638-459. John R. Bowman and William P. Ridenour, Pittsburgh, Pa., and June Hollenback Whittaker, Lombard, Ill., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware.

A method for preparing an improved paraffin wax comprising melting together solid polymerized ethylene and paraffin wax in approximately equal quantities, mixing until homogeneous, and subsequently adding thereto a quantity of molten paraffin wax such that the amount of polymerized ethylene in the combined wax and polymerized ethylene composition is from 0.001 to 7 per cent.

Polymerization Process

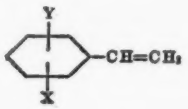
U. S. Patent 2,642,410. Harold A. Hoppens, Toledo, Ohio, assignor to Libby-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio.

A resinous composition capable of curing in 1½ to 10 hours at room temperature, comprising a copolymerizable mixture of a polymerizable alpha, beta-unsaturated alkyd resin and a polymerizable substance having the $CH_2=C$ group and having a boiling point above 60°C., 1-hydroxy cyclohexyl hydroperoxide-1 present in an amount from 0.10 to 5 per cent based on the weight of copolymerizable resin, and a metal salt drier present in an amount of from 0.004 to 0.01 per cent metal based on the weight of copolymerizable resin.

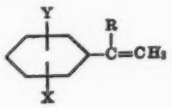
Styrene-Drying Oil Modified Alkyd

U. S. Patent 2,639,271. Gerald A. Griess, Midland, Mich., and Carl V. Strandskov, Des Moines, Iowa, assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware.

In a method of making a styrene-drying oil modified alkyd resin, the step of forming a phthalate of a toluene-soluble interpolymer containing free hydroxyl groups resulting from the interpolymerization and condensation of from 30 to 90 parts by weight of a drying oil having a degree of conjugation not greater than 35 per cent, from 70 to 10 parts of a mixture consisting of from 50 to 80 per cent by weight of a mono-vinyl aromatic compound having the formula:



and from 50 to 20 per cent of an alpha-methylene alkyl aromatic compound having the formula:



in which formulas X and Y each represents a member of the group consisting of hydrogen and lower alkyl radicals containing not more than 3 carbon atoms and R is an alkyl radical containing not more than 2 carbon atoms and from 0.06 to 0.3 part by weight of a polyhydric alcohol per part of drying oil, by mixing the interpolymer containing free hydroxyl groups with a chemically equivalent proportion of phthalic anhydride and heating the mixture at a temperature of from 230° to 260° C.

Metal Coating Composition

U. S. Patent 2,641,551. Herschel G. Smith, Wallingford, Troy L. Cantrell, Lansdowne, and Earl E. Fisher, Yeadon, Pa., assignors to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania.

A liquid coating composition of the class described consisting essentially of from about 15 to 30 per cent blown asphalt, about 5 to 10 per cent microcrystalline wax, up to 25 per cent filler, up to 10 per cent of a low molecular weight resinous material selected from the group consisting of hydrogenated rosin, rosin and coumarone indene resin 0.01 to 2 per cent of a primary fatty amine salt of 3-methylbutyl, 2-ethylhexyl orthophosphoric acid, and a solvent.

The headache that was nailed to a tree

Fewer years back than you might imagine, our ancestors had the idea that a tree could accommodate them by taking over a headache.

The technique was simple. The sufferer wrapped a lock of his hair around a nail and whacked it into the most convenient timber.

Unitol, the refined tall oil, is a forest product that does a more scientific job of relieving mental strain.

This superior tall oil costs substantially less than the components it replaces. Paint manufacturers like its light color, quick drying characteristics and high viscosities.

Economical Unitol simplifies processing too. Many users have reduced manufacturing costs in addition to their savings on raw materials.

unitol

Chemical Sales
UNION BAG & PAPER CORPORATION
Woolworth Building, New York 7, N. Y.

Clear Polymers

U. S. Patent 2,641,595. Robert F. Leary, Cranford, N. J., assignor to Standard Oil Development Company, a corporation of Delaware.

In a process for copolymerizing a mixture of isobutylene and styrene at a temperature of about −80°C. to −100°C. in the presence of aluminum chloride dissolved in methyl chloride as solvent, the improvement which comprises maintaining a continuously agitated polymerizing mixture of said styrene and isobutylene in a constant concentration in 2 to 4 volumes of methyl chloride as solvent and at a constant volume, maintaining a substantially constant conversion level of said polymerizing mixture at about 40 to 80% conversion, continuously adding a mixture of 38 to 32% by weight of isobutylene and 62 to 68% by weight of styrene in a substantially fixed ratio relative to each other to said polymerizing mixture, simultaneously continuously removing isobutylene, styrene and a copolymerization product containing about 58 to 62% combined styrene and having an intrinsic viscosity of about 0.7 to 1.5 and a light transmission of at least 60% in ¼" molded layer from the polymerizing mixture, and adjusting the ratio of the total amount of isobutylene and styrene added to the mixture of isobutylene, styrene and product removed so that the concentration of isobutylene and styrene and product in the polymerizing mixture is maintained constant.

Wax Refining Process

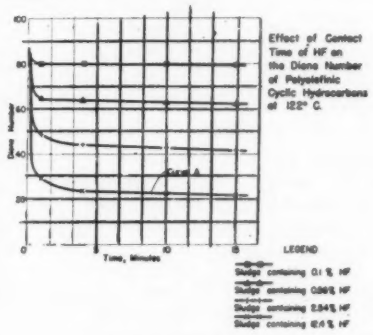
U. S. Patent 2,641,569. Willem Martin Mazee and Anna Barta Swart, Amsterdam, Netherlands, assignors to Shell Development Company, Emeryville, Calif., a corporation of Delaware.

In a method of sweating a predominantly paraffin wax to separate therefrom undesirable constituents in the liquid phase, the steps comprising preparing the wax cake for sweating by cooling a molten paraffin wax in a perforated receptacle to a temperature at which a solid wax cake is formed, said solid comprising a wax skeleton being associated with an original pore volume, the latter being initially occupied by liquid constituents at the commencement of sweating, and raising the temperature of said cake at a rate between about 0.025° and about 0.075°F. per minute within a temperature range between about 90° and about 150°F. while maintaining a mechanical pressure on the wax cake of between about 0.3 and about 15 pounds per square inch, whereby the original pore volume of the wax cake is varied by no more than about 10% until at least 90% of the sweated constituents are removed from the cake.

Process for Producing Hydrocarbon Drying Oils

U. S. Patent 2,644,847. Herman S. Bloch, Chicago and Alfred E. Hoffman, Clarendon Hills, Ill., assignors to Universal Oil Products Company, Chicago, Ill., a corporation of Delaware.

A process for improving a hydrocarbon drying oil recovered from a conjunct polymerization sludge as a mixture of polyolefinic cyclic hydrocarbons having diene numbers of at least 80 and containing from about 2.5 to about 4 double bonds per molecule of which an average of from about 1.5 to about 2.5 belong to a conjugated dienic system, which comprises subjecting said drying oil to an isomerization temperature in admixture with an amount of a conjunct polymerization catalyst less than the theoretical quantity required to form catalyst-hydrocarbon complexes, continuing the isomerization treatment of the drying oil at said temperature and with said catalyst until its diene number has been reduced to a value of from about 15 to about 65, and recovering the thus isomerized drying oil of reduced diene number.



U. S. Patent 2,644,847

Siloxane Compositions

U. S. Patent 2,645,629. Siegfried Nitzsche, Burghausen, Upper Bavaria, Germany, assignor to Dr. Alexander Wacker Gesellschaft fur Elektrochemische Industrie G. m. b. H., Munich, Bavaria, Germany.

The process for accelerating the condensation of an organopolysiloxane having an average degree of substitution of from 1 to 2 inclusive organic radicals per silicon atom, said organic radicals being attached to the silicon atoms by direct carbon to silicon linkage and at least some of the silicon atoms in said siloxane having at least one hydrogen atom bonded thereto, which comprises adding an aluminum chelate selected from the group consisting of chelates of aluminum with acetyl acetone, acetoacetic acid, esters of acetoacetic acid, and esters of malonic acid, to said siloxane in an amount sufficient to accelerate the condensation of said siloxane.

Tall Oil Treatment

U. S. Patent 2,640,823. Stewart W. Gloyer and Henry A. Vogel, Milwaukee, Wis., assignors to Pittsburgh Plate Glass Company, a corporation of Pennsylvania.

A process of recovering unsaponifiable matter of tall oil from tall oil, which process comprises selectively esterifying the free fatty acids in tall oil with a lower alcohol, extracting the resultant mixture of esterified fatty acids, rosin acids and unsaponifiable matter with a selective polar solvent to obtain an extract of rosin acids and a raffinate containing most of the esters of fatty acids and most of the unsaponifiable matter of the tall oil and a minor amount of rosin acids, then distilling the raffinate to obtain the esters of fatty acids in purified form and to obtain a pitch-like still residue of residual esters of fatty acids, rosin acids and a high concentration of unsaponifiable matter, saponifying said acids and esters with an aqueous alcohol solution of an alkaline compound of an alkali metal to obtain solutions of soaps of tall oil and unsaponifiable matter in water and alcohol, extracting out the unsaponifiable matter from said solution with a solvent therefor which is immiscible in water and alcohol eliminating the solvent from the un saponifiable matter and crystallizing out the sterols in the unsaponifiable matter in a monohydric alcohol containing 1 to 3 carbon atoms in a straight chain hydrocarbon nucleus.

Fire Resistant Coating

U. S. Patent 2,640,786. Joseph R. Parsons, Chicago, Ill., Morton C. Higgs, Bell, Calif., and Mary A. Loos, Chicago, Ill., assignors to United States Gypsum Company, Ill., a corporation of Illinois.

A coating composition applicable to inherently combustible base-sheet material to form therewith a relatively fire-resistant building-covering material comprising a filled thermoplastic bituminous binder containing from about 30% to about 70% by weight of asphalt, from about 10% to about 25% by weight of small tightly rolled up mineral wool masses having a diameter such that they will pass through a 3-mesh screen but be retained on a 20-mesh screen, and enough of an inorganic filler from the group consisting of ground minerals and asbestos to make 100% by weight.

A building element having water- and fire-resistant qualities, comprising an inherently combustible base-sheet material coated with the composition of claim 1.

Fire-Retardant Coating

U. S. Patent 2,642,405. Morris L. Nielsen, Dayton, Ohio, assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A fire-retarding, coating composition consisting of a dispersion of water, the water-insoluble reaction product of phosphoryl chloride and anhydrous ammonia, said water-insoluble product having a nitrogen/phosphorus ratio between 1.75:1 and 1.85:1 and being present to the extent of 5% to 50% by weight of the solid components, and a resin selected from the group consisting of amine-aldehyde and amide-aldehyde resins.

you can't blame them... the paint's made with Titanox®-C-50

(rutile-calcium pigment; 50% TiO_2)

Easy application, hiding, washability, color uniformity . . . these are the properties that make flat wall paints so popular. And in many cases the low cost way to get these properties is to use TITANOX-C-50, with proper extender.

A coalesced composite pigment, TITANOX-C-50 provides distinct advantages over ordinary mixtures of titanium dioxide and extender. In compositions pigmented between the limits of "pure" rutile TiO_2 and TITANOX-RCHT (30% TiO_2), TITANOX-C-50 provides *unequalled hiding power per dollar of pigment*.

TITANOX-C-50 is especially useful in modifications of flat wall paints to the new "odorless" types. Our Technical Service Department will be glad to help you with such problems.

Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 2; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

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Subsidiary of NATIONAL LEAD COMPANY

41st National Safety Congress To Be Held Oct. 19-23 in Chi.

Industrial safety will be among the topics discussed at the 61st National Safety Congress and Exposition scheduled October 19-23, Chicago, Ill.

The sessions will be held at the Conrad Hilton, Congress, Morrison and Hamilton Hotels.

Other topics to be discussed include traffic and home safety.

Safety Film

The National Safety Council has just published the 1953-54 edition of the National Directory of Safety Films.

The directory provides the plant safety man with a comprehensive listing of 963 motion pictures and slidefilms for use in training personnel in occupational accident prevention.

Copies of the directory are available for 75 cents each from the NSC, 425 N. Michigan Ave., Chicago 11.

Also available from the Council is a new *Handbook of Accident Prevention for Business and Industry.* Designed for use by the manager of a small business or the supervisor of a department in a large organization, the handbook shows how to set up and maintain a safety program.

For information on prices, write the Council.

•

Celanese Establishes Chemical Sales Office in St. Louis, Mo.

The Celanese Corporation of America has established a new chemical sales office in the Continental Building, 3615 Olive St., St. Louis, Mo.

M. Henry Jamison will supervise the office which will be a branch of the Chicago district office, managed by R. J. Werner.

•

Newly Formed Chicago Firm Enters Chemical Sales Field

K. A. Steel Chemicals, Inc., 7450 Stony Island Ave., Chicago 49, have announced their entry into the field of chemical sales.

The newly formed firm will handle crude Tall Oil, fractionated Tall Oil, Iron Sulfates and industrial grade Ammonium Sulfate.

Kenneth Steel, president, had been associated with West Virginia Pulp and Paper Company since 1939 before forming his own company.

AEROSOL COATINGS

(*From page 28*)

blushing can generally be prevented by the addition of a small amount of a high-boiling, powerful solvent so that any preciptitated material will be redissolved and blended into the final film.

The development of bubbles and craters in the dried film in some cases may be more of a problem with aerosol products, especially in fast drying formulations. The application of excessively heavy coatings tends to increase these undesirable effects. The nature of the resin and the solvent balance are other factors that influence the tendency to form bubbles and craters. The remedy is likely to be different for each formulation but generally the addition of high-boiling solvents is beneficial. Bubbling tends to be more severe in formulations of high viscosity.

Another problem faced by the aerosol paint dispenser is the tendency to produce a mist of very fine particles that do not reach the target but float off through the air and settle in undesirable places. This situation is generally improved by lowering the pressure and increasing the viscosity. The design of the valve also influences the amount of misting. The various types of coatings such as flat paint, enamels and lacquers or clear coatings may work best with different types of valves or at least different orifice sizes. However, in selecting valves to reduce misting or to improve other spraying properties, the orifice diameter cannot be changed too much. Small orifices tend to cause discharge as a stream rather than a spray, while larger sizes have excessively high delivery rates.

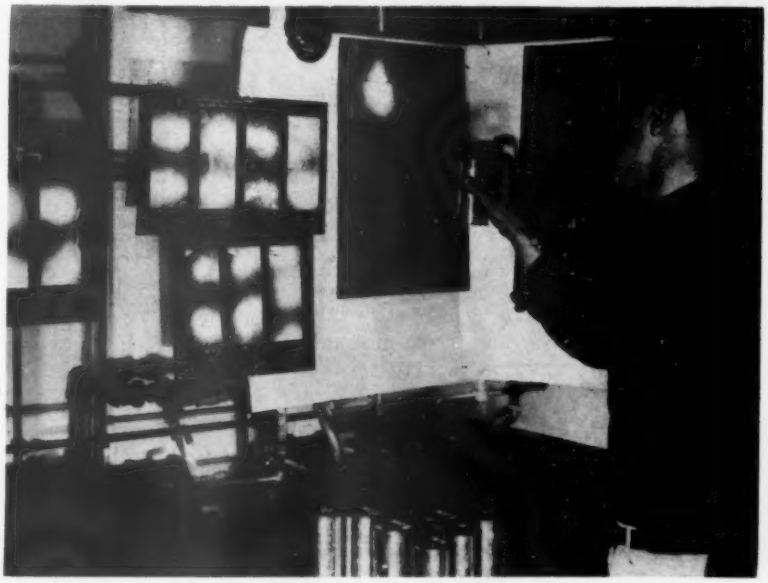

Figure 12. Test spraying of aerosol coating compositions.

In determining the characteristics of aerosol coating compositions, the propellent can be considered to have the same effect as a thinning solvent of low solvent power. When the product is sprayed from the container and the pressure is released, the propellent evaporates, leaving behind a film with properties similar to coatings applied by other methods. In common with all coating compositions, the only way to properly evaluate the aerosol product is to use it, and test spraying as illustrated in Figure 12 is essential in the development of suitable formulations.

Literature References

1. "A Method for Determining Pressure and Consistency of Aerosol Coating Compositions" by Morrow and Palmer, Proceedings of the Thirty-Eighth Mid-Year Meeting of the Chemical Specialties Manufacturers Association, page 39.
2. "Formulation of Aerosol Enamels" by Palmer and Morrow, Proceedings of the Thirty-Ninth Annual Meeting of the Chemical Specialties Manufacturers Association, page 66.
3. "Formulation of Aerosol Lacquers" by F. S. Palmer, to be published in the Proceedings of the Thirty-Ninth Mid-Year Meeting of the Chemical Specialties Manufacturers Association.
4. "Aerosol 'Bomb' Dispensers for Paint" by Reese and Moore, circular 758, National Paint, Varnish and Lacquer Association, October 1952.

THREE OF A KIND

TO SIMPLIFY...

YOUR PAINT PRODUCTION

Three of a kind may not win in a poker game but a sure winner in paint production. Makes possible paints of varying oil lengths with low inventory dollars. Really versatile non pthalic alkyds 70% solids.

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TECHNICAL Bulletins

PLANT MAINTENANCE

Book titled "Techniques of Plant Maintenance—1953," has been published by Clapp & Poliak, Inc., founder of the Plant Maintenance & Engineering Show and Conference.

Volume contains the text of the 61 sessions on maintenance and plant engineering held at this years' show and conference in Cleveland.

Highlight of the publication is the listing of 859 questions and answers covered at the various sessions.

The 288-page book is available without charge to those who attended the conference. It is also available postpaid for six dollars.

Requests should be mailed to Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

VINSOL USES

Booklet gives up-to-date information about the use of Vinsol, a low-cost dark-colored resin. Applications for Vinsol discussed include its use in adhesives, asphalt emulsions, floor coverings, plastics and protective coatings. Information about the forms in which Vinsol is available and properties of the resins is contained in literature.

Hercules Powder Company, Wilmington, Del.

PROTECTIVE COATING

Alodizing with "Alodine" No. 1200, a newly developed chemical in the protective coating of aluminum, is described in release issued by the American Chemical Paint Company, Ambler, Pa.

Feature of process is that it can be used in tanks in an immersion process, or, in a multi-stage power washer in a spray process, or, with a slight adjustment of pH, with brush or portable spray equipment in a manual process.

"Alodine" No. 1200 is specifically recommended for coating wrought products that are not to be painted or are to be only partially painted; and for coating casting and forging alloys whether or not these are to be painted.

Literature also gives results of a 500 hour salt spray exposure test with the chemical.

TRADE MARK DIRECTORY

The 1953 Trade-Mark Directory has been issued by the Trade Mark Bureau, National Paint, Varnish and Lacquer Association, Inc., 1500 Rhode Island Ave., N. W., Washington, D. C.

The director contains information on about 35,000 trade-marks used in the paint and allied industry. It also lists all registrations in the United States Patent Office for Class 16 (Protective and Decorative Coatings) which embrace about 25 per cent of the marks published; the remaining number were secured by the Bureau through its own facilities.

Purchasers of the directory (listed at $4.50 for members and $7.00 for non-members) will be sent a supplement, at no additional cost, containing trade-marks added to the records since the edition came off the press.

TITANIUM DIOXIDE CHART

Chart lists all grades of company's line of anatase and rutile "unitane" titanium dioxides. Characteristics, composition, specifications, and suggested uses are also given. Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J.

RESIN STANDARDS

Resin catalog has been issued by the Pigment, Color and Chemical Division of the Sherwin-Williams Company, 115th St. and Cottage Grove Ave., Chicago 28, Ill., listing the active resin standards available from the division.

The 90-page catalog, published in loose-leaf form, contains sections on oil and resin modified alkyds, styrenated alkyds, maleic and fumaric treated resin solutions, oleoresinous varnish solutions and emulsion resins.

Charts have been included which list the principal recommended uses for the resins and show the properties and specifications of the resins. Feature of publication is a set of recommendations for the best drier combinations to be used with each resin.

VINYL COATING SYSTEMS

Twelve-page folder entitled, "Effect of Platy Mica on Vinyl Systems," is available for 35 cents from the Office of Information Services, New York University, University Heights, New York 53, N. Y.

The paper, which was prepared by Max Kronstein, Louis F. DeLong, and Alfred W. Norman of the Research Division of the College of Engineering, describes the results of exposure tests on three types of vinyl coating systems, with mica as a platy extender.

Reprinted from the May 1953 issue of "Paint and Varnish Production," the article is illustrated with charts and graphs.

CENTRIFUGAL BLOWERS

Thirty-two page bulletin includes information on centrifugal blowers and exhausters for air or gas handling.

Published by the Billmyre Blower Division, Lamson Corporation, Syracuse, N. Y., publication lists and illustrates applications of Billmyre blowers.

Technical data is included on: agitation of liquids; air for combusion; air for foundry cupolas; ice making; vacuum cleaning; and pneumatic conveying.

Copies of bulletin may be obtained by writing the firm.

FILTERS FOR LIQUIDS

Bulletin describing its full line of Micro-Klean Filters (for liquid applications, has just been published by the Cuno Engineering Corporation, Meriden, Conn. The products described include standard models for flows between 1.8 GPM and 900 GPM: Maximum operating pressures of standard units range from 125 PSI to 1000 PSI.

Featured in the bulletin is the recently announced graded density cartridge. Applications, standard dimensions, case histories, and a selector chart, to be used as a guide for choosing the proper filter under normal conditions, are included.

Bulletin may be had by writing the firm

VARIABLE-AREA METER

Catalog entitled, "An Introduction to Flowrator Meters," has been published by the Fischer & Porter Company, Hatboro, Pa.

Literature discusses Flowrator meters and compares these variable-area types and the more common variable-head meters. Other points discussed are how the variable-area meter works, its basic flow equation, as well as information on calibration scales, metering range, permanent pressure loss, upstream piping effects, viscosity effects, purging, and pulsating flow.

Also included in catalog is a description of F&P fabricating methods and facilities related to Flowrator meter production.

CALENDAR OF EVENTS

Sept. 6-11. ACS Fall Meeting, Chicago, Ill.

Sept. 24-25. 20th Annual Convention of the American Tung Oil Ass'n., Buena Vista Hotel, Biloxi, Miss.

Oct. 26-28. 65th Annual Meeting of National Paint, Varnish and Lacquer Ass'n., Chalfonte-Haddon Hall, Atlantic City, N. J.

Oct. 29-31. 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs and 18th Paint Industries' Show, Chalfonte-Haddon Hall, Atlantic City, N. J.

Nov. 2-4. 27th Fall Meeting of the American Oil Chemists Society, Sherman Hotel, Chicago, Ill.

Production Club Meetings

Baltimore, 2nd Friday, Park Plaza Hotel.

Chicago, 1st Monday, Furniture Mart.

C.D.I.C., 2nd Monday.
Cincinnati — Oct., Dec., Mar., May, Hotel Alms.
Dayton — Nov., Feb., April, Suttmillers.
Indianapolis — Sept., Claypoll Hotel.
Columbus — Jan., June, Fort Hayes Hotel.

Cleveland, 3rd Friday, Harvey Restaurant.

Dallas, 2nd Thursday, No Fixed Place.

Detroit, 4th Tuesday, Rackham Building.

Golden Gate, Last Monday, El Jardin Restaurant, San Francisco.

Houston, 2nd Tuesday, Seven Seas Restaurant.

Kansas City, 2nd Wednesday, Pickwick Hotel.

Los Angeles, 2nd Wednesday, Scully's Cafe.

Louisville, 3rd Wednesday, Seelbach Hotel.

Montreal, 1st Wednesday, Queen's Hotel.

New England, 3rd Thursday, Puritan Hotel, Boston.

New York, 1st Thursday, Brass Rail, 100 Park Ave.

Northwestern, 1st Friday, St. Paul Town and Country Club.

Pacific Northwest, Annual Meetings only.

Philadelphia, 3rd Wednesday, Engineer's Club.

Pittsburgh, 1st Monday, Fort Pitt Hotel.

St. Louis, 3rd Tuesday, Forest Park Hotel.

Southern, Annual Meetings Only.

Toronto. 3rd Monday, Diana Sweets, Ltd.

Western New York, 1st Monday, 40-8 Club, Buffalo.

MATERIALS HANDLING

Booklet designed to help small business firms increase efficiency by improving their system of materials handling has been prepared by the Small Defense Plants Administration.

The 42-page booklet, Improving Materials Handling in Small Plants, is on sale for 20 cents by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Booklet gives methods for determining whether a plant's materials-handling system is as good as it should be; explains various types of equipment that may be used to increase efficiency; gives practical pointers on good plant layout, and explains how waste motion and effort can be reduced in many machine operations.

Selected sources of additional information are also listed.

HALF-SECOND BUTYRATE

Sixteen-page booklet containing the most recent technical information on Eastman half-second butyrate has just been published.

The booklet contains data on the compatability of the new low-viscosity cellulose acetate butyrate film former with some 125 natural and synthetic resins, oils and waxes and includes such factors as hardness, tensile strength, flexibility and the effects of water immersion.

Also included are formulation suggestions for wood, paper, metal and plastic finishes, heating sealing adhesives and melt coatings.

Copies of the booklet are available upon request to Eastman Chemical Products, Inc., Chemicals Division at Kingsport, Tenn.

AMINOHYDROXY COMPOUNDS

Folder on the Aminohydroxy Compounds has been released by the Commercial Solvents Corporation, 260 Madison Ave., New York 16, N. Y.

The four-page publication lists general characteristics of the compounds and their uses. It also contains a specification chart listing their physical properties.

Among the uses of the aminohydroxy compounds are in paste waxes, shoe polishes and automobile cleaners and polishes.

New Book

Marine Fouling and Its Prevention

Prepared for the Bureau of Ships, Navy Dept. by Woods Hole Oceanographic Institution, Woods Hole, Mass. Available from United States Naval Institute, Annapolis, Md.

This 388 page monograph is the result of an investigation made by Woods Hole Oceanographic Institution during 1940-1946 for the purpose of attaining more fundamental scientific knowledge of the fouling process, and the way anti-fouling paints acted under different conditions. This work is divided into three parts: Problem of Fouling, Biology of Fouling, and Prevention of Fouling.

The first part of this work is concerned with the effects of fouling,and a discussion of ship resistance and the effects of surface roughness, slime film, paint surface on this nautical phenomenum. Effect of fouling on propellers is also presented.

The second part deals with the biology of fouling and such factors as temporal sequence, biotic successions, season sequence, quantitative aspects, geographical distribution, relations of local environments are presented in detail. Other topics included in this section are lengthy discussions of the principal fouling organisms, and the numerous species recorded from fouling on ships, test surfaces, buoys, submarine cables, floats, pipes, etc.

The prevention of fouling is treated in the last part covering the history of prevention of fouling by protective devices and paints. In addition, there are chapters on factors influencing the attachment and adherence of fouling organisms, the use of toxic materials, the chemistry of compounds of copper and mercury and their interaction with sea water, mechanism of release of toxics from paints, dissolution of the matrix and its ingredients, characteristics of anti-fouling coatings, formulation and testing of anti-fouling paints, fouling of metallic surfaces, and the interaction of anti-fouling paints and steel.

CLASSIFIED ADVERTISEMENTS

Rates: $.20 per word, except those seeking employment, for which rate is $.10 per word. Minimum: ten words. Address all replies to Box Number, c/o Paint and Varnish Production, 855 Avenue of the Americas, New York 1, New York.

PAINT CHEMIST AVAILABLE — BS, MBA degrees. 6 yrs. experience in quality control, formulation, research and development, color matching. Capable of taking charge of lab development and/or plant production. Presently employed. Box 910

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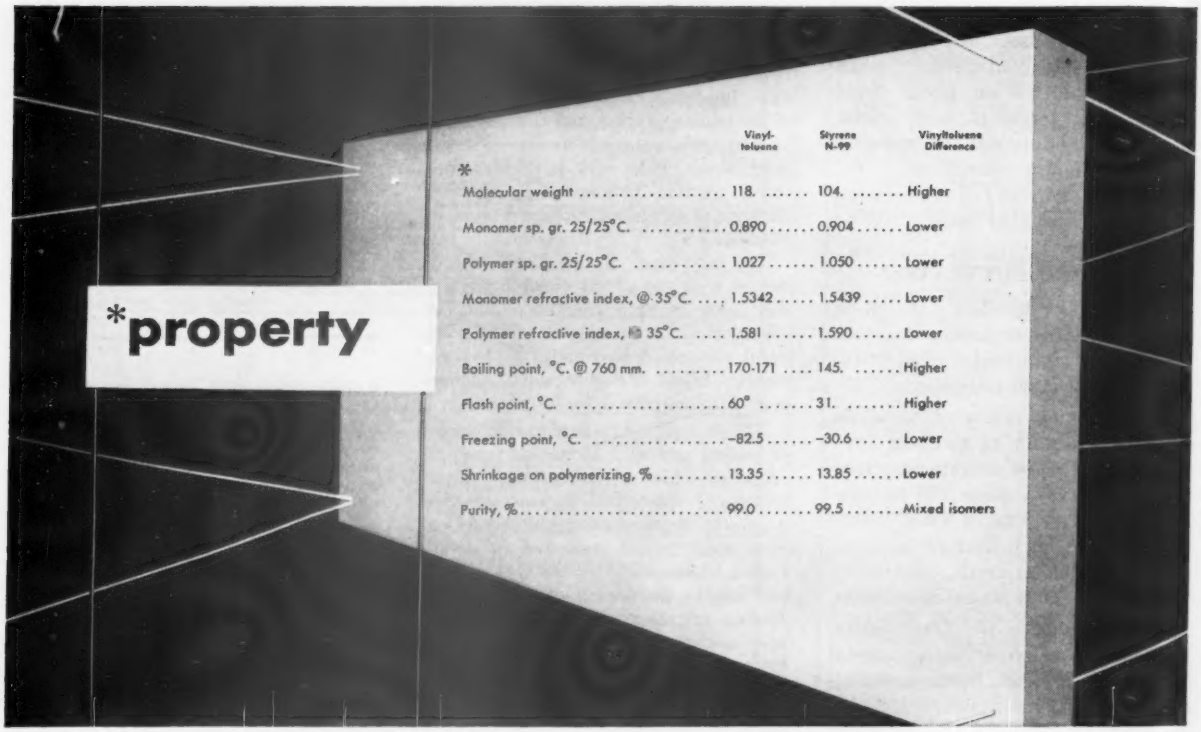
COMPARISONS SUGGEST END-USE ADVANTAGES OF VINYLTOLUENE

DOW vinyltoluene reacts with many unsaturated compounds to produce a wide range of completely new copolymers



Vinyltoluene, the latest in a series of monomers developed in Dow's research laboratories, will supplement styrene in many ways. This new monomer shows important property variations from styrene, pointing to its advantageous substitution for styrene in creating new types of synthetic rubber, rubber reinforcing resins, polyester resins, coating latexes and paint vehicles.

Development work has demonstrated that paint vehicles made with vinyltoluene will be particularly valuable. While styrene will react with several usable paint oils, vinyltoluene has proven its ability to react to form clear, useful vehicles with all of the commercially important drying oils.

Quantities of vinyltoluene sufficient for developmental work are now available. For copies of the vinyltoluene-styrene comparison chart write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Dept. PL 1556C.

you can depend on DOW PLASTICS

DOW

POLYOLS

(*From page 36*)

and hardness is considerably better. Resins prepared from a mixture of pentaerythritol and sorbitol or pentaerythritol, ethylene glycol, and sorbitol have better stability without taking anything away from the good properties imparted by pentaerythritol. This, in my opinion, is due to the fact that the inner ethers formed in the sorbitol and to its solubility and compatability with other resins and both of these properties gives us better stability on aging. This being true, the disadvantage of these inner ethers raising the cost of the reactive hydroxyl is lessened to some degree and sorbitol will then take its place in the field not only as a partial substitute for glycerin, but on its own merits, and will compete with glycerin and pentaerythritol wherever the economics are favorable.

In closing, I would just like to add one word of caution in substitution of these polyols in resins. Careful overall evaluation should be made before adopting the change, although the products may have similar initial characteristics such as viscosity, color, and dry, may in the final analysis prove to be poor in its overall use, but if these difficulties are recognized soon enough, they can be worked out satisfactorily by reformation.

In the field of synthetic resins it is certainly a definite advantage to have as many polyhydric alcohols available as possible both from the standpoints of substitution if other alcohols become scarce, and also for variation to produce a product for a specific end use.

The use of pentaerythritol in the alkyds is still relatively new, and the use of sorbitol even more recent, and as they become more widely used, and development, and investigation continued, the more technical "know how" will be built up and their use in the future will become much greater than it is today.

Dow Chemical Launches Methylene Chloride Home Consumer Program

With the recent removal of methylene chloride from government allocation, The Dow Chemical Company has begun a nation-wide educational program outlining the advantages of using "Scrape-off" paint remover formulations at the home-consumer level.

After World War II when methylene chloride became available for civilian use, the non-flammable formulations reached a brisk sales pace until the Korean war outbreak brought supply short again. A new Dow plant, plus production by other manufacturers, has permitted the removal of the material from the allocation list.

Dow's promotional program is aimed directly at home consumers through "how-to-do-it" newspaper and magazine picture articles. All the major metropolitan newspapers and some 3500 other daily and weekly newspapers are scheduled to receive informative articles on the product's use. Dow has already kicked-off the program with a news-educational article covering methylene chloride's new status in its publication, The Dow Diamond.

The program is stressing the idea of rejuvenating old furniture or related items through paint, varnish or lacquer removal followed by a fresh paint application.

ADVERTISERS' INDEX

a new and improved zinc stearate

. . . with limited solubility and low gelling action in organic solvents

. . . with improved flatting efficiency

. . . available at no increase in price

CYANAMID ZINC STEARATE 53

★ **An efficient sanding aid in lacquer sanding sealers.** Its limited solubility and low gelling action in organic solvents help produce fluid, easily handled mill bases. Imparts easy sanding characteristics required in modern wood finishing schedules.

★ **A superior flatting agent for lacquers and varnishes.** Normal use will call for 2 to 6 per cent Cyanamid Zinc Stearate 53 on basis of vehicle solids, depending on degree of gloss desired.

★ **Now available in commercial quantities.** Write for sample and technical data sheet.

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(Hydrated Aluminum Silicate Extender Pigment)

Especially effective in latex emulsion paints, the newly developed Hydrite Flat Extender Pigment has attracted keen interest among paint manufacturers for its excellent flatting qualities. In addition, Hydrite Flat possesses an unusual combination of chemical and physical properties that assure uniform, trouble-free, low-cost production.

HYDRITE FLAT

Chemical Properties: Hydrated Aluminum Silicate. Non-reactive toward either acids or alkalies. Controlled low soluble salts.

Physical Properties: Readily deflocculated by common dispersing agents, e.g., caseinates, polymerized phosphates, etc. Compatible with both aqueous and non-aqueous vehicles.

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For you:

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- Lower cost formulation

For your customers:

- Beautiful flat finish
- Good film integrity
- Resistance to ink stains
- Good cleansability

Send for detailed technical bulletin on Hydrite Flat. Free sample available for testing. Our technicians are at your service.

HYDRITE FLAT

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